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ORIGINAL LECTURES.

MACEWEN'S OPERATION FOR HERNIA—EXCISION OF A BUBO—WHITEHEAD'S OPERATION FOR HÆMORRHOIDS.

A Clinical Lecture,
delivered at St. Luke's Hospital, New York.

BY B. FARQUHAR CURTIS, M.D.,
ATTENDING SURGEON.

GENTLEMEN: This patient, who is a single man, forty-three years of age, first noticed a tumor in the left groin about twelve years ago, after a severe muscular effort. It grew to the size of a hen's egg, and then remained stationary for five years, when another muscular strain was immediately followed by the appearance of a similar tumor in the right groin. These tumors increased until they formed a mass about the size of a man's head. These large masses on examination proved to be double, oblique, reducible inguinal herniæ, and in March, 1889, the hernia on the right side was operated upon by the old method of simply dissecting out the sac, tying it high up, and leaving the pillars of the ring unsutured, to unite by adhesion, and closing the wound. In May of the same year, another surgeon operated on the left side by Dr. McBurney's method, and the patient remained in the hospital for a considerable time afterward. During this time he came under my care, and as his scrotum was exceedingly redundant, I amputated a portion of it, in August, and he was soon afterward discharged. Two months later, he tells us, both herniæ returned, *i. e.*, six months after the McBurney operation and eight months after the old operation, and he has been unable to wear a truss. He is naturally of a lax fibre, and is not a favorable subject for such operations; but he is extremely anxious to have something further done, particularly on the side where McBurney's operation was performed. Unfortunately, this is by far the most difficult side to operate on, owing to the matting together of the parts by cicatricial tissue, but I have decided to make the attempt, and shall perform the Macewen operation.

In this operation, as you know, the sac is exposed and if possible, dissected out without being opened. It is then doubled upon itself by means of a catgut suture passed through it, and is returned into the abdominal ring so as to make a mass between the fibrous tissues and the peritoneum. This mass is supposed to act as a pad, closing the internal ring. The two pillars of the ring are brought together by a peculiar form of suture to be hereafter described.

Having exposed the sac, you notice that I begin the dissection at its neck, as this is the part which is most easily recognized and most readily reached. The only serious danger is from injury to the cord; but by carefully tearing through the soft parts with the fingers or forceps this danger, as well as the amount of bleeding, is reduced to a minimum. The abdominal ring is large enough to admit three fingers, and we must first insert a sponge into the ring to prevent the descent of the intestine. It is well to avoid frequent sponging of the parts, as this imparts to all the tissues a uniform red color, and greatly increases the difficulty of distinguishing between them.

Macewen's suture is first passed through the conjoined tendon on the inner side in a direction almost parallel with its fibres, entering about one inch above the pubic bone and emerging half an inch below. This gives a loop half an inch long, which includes the conjoined tendon. Each end of the silk is then passed through the external pillar at points opposite to the insertions of the suture in the conjoined tendon. In this way the two pillars of the ring are brought together and made to overlap slightly. This method of suturing the pillars I consider the best yet devised, and I think that it, rather than the plan of rolling up the sac so as to make it plug the canal, is the essential feature of Macewen's operation. The plug is of very doubtful efficacy.

I propose to modify the operation in this case by separating the cord and having it held to one side during the passage of the suture, so that the pillars are brought together from the pubic bone upward, and the cord is thus made to pass through the upper instead of the lower angle of the wound. This plan, I believe, is of Italian origin, and was suggested by the fact that excellent results are obtained when castration is added to the operation for radical cure, allowing complete closure of the external ring. Whether equally good results can be obtained by simply displacing the cord, is as yet uncertain. In this case as the ring is very large, I shall pass a second mattress suture half an inch higher than the first, but otherwise similar to it. The sutures should not exactly follow the direction of the longitudinal fibres, because they would cut completely through, and even with this precaution they cut considerably. As a rule, these herniotomy wounds do best when a drainage-tube is inserted for a few days, but notwithstanding the size of the wounds and the amount of laceration to which the tissues are subjected, they generally heal very kindly. It is interesting to note that there is rarely any complication, such as hæmatocele, orchitis, or epididymitis.

The operation is now completed. The sac was very adherent to the ring, and at the posterior portion of the neck required a very difficult and tedious dissection, during which it was torn, necessitating a complete removal of the sac, and thus modifying the Macewen method. The large opening in the peritoneum at the neck of the sac was brought together with a continuous catgut suture, taking care to bring the peritoneal surfaces into apposition; then the remains of the sac were cut off, and the pillars of the ring united.

As regards the general question of the treatment of hernia by operation, I would say that a reducible hernia which is easily retained by a truss is better without operation; for the best statistics by all methods do not give more than fifty per cent. of permanent cures. There have been much higher percentages claimed for special methods by their authors or chief advocates, but it is suggestive that other operators cannot secure equally good results.

In this patient we shall make use of dressings which have been simply sterilized by steam, for after the previous operations the usual antiseptic dressings gave rise to a very troublesome eczema.

EXCISION OF A BUBO.

The next case which I present to you is that of a single man, twenty-four years of age, who comes to us with a mass of enlarged glands in the right groin. The only history of venereal trouble is that of an uncomplicated gonorrhœa three years ago; nor is there any history of a traumatism which would be likely to lead to such a condition. The etiology then, is obscure, but no more so than is often observed in the case of adenitis in other situations.

The present swelling was first noticed twelve days ago, and was followed by pain and redness of the skin. At present the mass extends half an inch below and two inches above Poupart's ligament, and in its longest diameter, which is parallel to Poupart's ligament, it is about three inches in length. There is an indistinct sense of fluctuation in the middle portion, and it is probable that some suppuration has already taken place; but in spite of this I think we can remove the entire mass and secure primary union. Such a result is much to be desired, for, you all know, that when these glands are allowed to go on to suppuration without removal, the process of healing is exceedingly tedious. Excision of such inflamed glands is much more popular now than formerly, the older surgeons fearing a wound of the femoral vein. Now that we know that the hæmorrhage from a wounded vein can be safely controlled by the lateral ligature or by a clamp applied in such a manner that it will not completely obstruct the venous current, this danger no longer deters us from operating.

The operation consists in making an incision in the long axis of the tumor, and turning back two flaps, protecting the wound as far as possible from contamination with pus by covering it with pieces of iodoform-gauze. Constant irrigation during the operation does more harm than good, by spreading the purulent discharge over all parts of the wound, and should not be employed until the mass has been entirely excised. Having dissected the flaps free from the glandular mass, it is advisable to reach the cellular tissue at the extremities of the incision. As you see, pus has already broken through the capsule of the gland and infiltrated the subcutaneus tissue. We begin the removal of the mass at the upper and more accessible portion, lift it from the fascia, and working underneath the tumor, clamp the large vessels as they appear. Remarkably large vessels are often found supplying these inflammatory growths. Sometimes the glands just above the femoral ring are involved, and it is then a difficult matter to dissect them from the vessels. Having removed the large mass, a few isolated glands are excised. The wound is now irrigated with 1-to-1000 corrosive sublimate solution, and, to secure a completely aseptic condition and at the same time to make slight pressure upon the interior of the wound, a strip of iodoform-gauze is introduced, over which the flaps are united. This gauze will be removed in twenty-four hours, and then properly-applied compresses will obliterate the cavity, and in all probability enable us to obtain primary union. Even if we should not attain this desirable result, the operation has greatly shortened the duration of the case; for the healing process takes place much more promptly after excision of the glands than after simple incision and curetting.

EXCISION OF HÆMORRHOIDS.

The next patient is a man thirty-four years of age, who has suffered from symptoms of hæmorrhoids for ten years, having lost a considerable amount of blood from the anus during the last four years. His general health is otherwise good. A ring of large external piles surrounds the anus, and within this outer circle is seen a large mass of slightly-protruding internal piles. At the posterior edge is a narrow ulcerating cleft which passes through the entire thickness of the mucous membrane, but there is no sloughing.

The patient being under ether, in the lithotomy position, the buttocks are carefully shaved and cleansed, and the sphincter ani dilated. The bowels have been emptied by laxatives and by an enema given two hours before the operation.

The operation which we propose to do is that of excision, introduced by Whitehead, which is the best for such extensive cases of the disease as we find in this patient. The only disadvantages of the operation are the rather abundant loss of blood which it occasions and the prolonged manipulation. With antiseptic precautions the danger of sepsis is very slight, even if primary union should not be obtained, and if the operation is properly done the cicatricial contraction will never occasion stricture.

A shallow incision entirely dividing the mucous membrane around the circumference of the anus just inside of the white line which marks the muco-cutaneous junction, is made with a scalpel, and the greatest safeguard is secured against cicatricial contraction by keeping well within this line. In this case the line passes over the irregular surface of the external piles and is not easy to follow, but with a little care the incision is completed. Next the internal hæmorrhoids are drawn down with the fingers inserted in the anus, and the incision is deepened with a pair of blunt-pointed scissors, cutting somewhat into the hæmorrhoidal tissue, until the longitudinal muscular coat of the bowels is recognized. This is also divided close to the anus, by successive snips of the scissors, until the outer surface of the mucous membrane is recognized. The latter is then easily separated from the surrounding tissues as far as is necessary, and drawn down. The most difficult part to dissect up is, in the male, the anterior surface, toward the base of the bladder. Clamps are applied to the bleeding vessels and about half a dozen require ligatures.

In this case about an inch and a half of the mucous membrane was drawn down, including all the spongy dis-

eased tissue, and then, beginning behind, it was divided beyond the limits of the diseased tissue with the scissors, only small portions being cut at a time, and the edge thus made being at once united to the edge of the external wound by a continuous, fine, silk suture. The principal bleeding vessels are usually found in the cut edge of the mucous membrane, but the hæmorrhage is easily controlled by the sutures. When the operation is completed a circular line of sutures is seen surrounding the anus. A large rubber drainage-tube about six inches long, wound with iodoform-gauze in the middle so as to make a spindle-shaped plug, is then introduced so that the thickest portion of the plug lies in the anus, and makes firm pressure upon the wound, thus preventing oozing of blood and favoring early union. The bowels are to be kept confined with opium for a week, if this can be readily done. If the bowels cannot be controlled, or if there is any objection to confining them, the stools should be made soft, but not fluid, and the anus and rectum carefully cleansed after each passage. The silk suture will be removed in ten days, unless it cuts its way out before that time. This patient has lost only a few ounces of blood, and although the operation has been rather tedious he is in good condition.

INTRACRANIAL LESIONS.[1]

BY W. W. KEEN, M.D.,
PROFESSOR OF THE PRINCIPLES OF SURGERY IN THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

THE programme proposes five questions for discussion. I feel that it will be better for me to leave the first two, concerning cerebral topography and the nature of the lesions, to the able neurologists who are to take part in the discussion, rather than to attempt to treat them so briefly and imperfectly as I should have to do in this paper. I shall, therefore, content myself with some observations on the last three questions, which are strictly surgical.

Before doing so, however, I desire to show to the members Mr. Horsley's new Rolandic-fissure meter, which I have lately obtained through his courtesy. Heretofore we have assumed that, as shown by Thane, the fissure of Rolando runs downward and forward at an angle of 67° with the middle line. Mr. Horsley's observations have convinced him that the angle varies with the shape of the head—that is tosay, with the cranial index. The higher the cranial index the greater the angle, the lower the index the lower the angle. Mr. Horsley assumes a standard for the cranial index of 75, as established by the caliper of Broca, and for the angle of the fissure of Rolando, 69° instead of 67°, and for every two integers of variation in the cranial index he assumes one degree of variation in the angle of the Rolandic fissure. Hence, if the cranial index is 77° instead of 75°, the angle for the fissure would be 70° instead of 69°, and if the cranial index is 73 the angle for the fissure would be 68°, and so on. Based upon this, he has devised the instrument which I show you, and which differs from the ordinary fissure-meters or cyrtometers in being provided with means to rotate the arm representing the fissure of Rolando.

INDICATIONS FOR OPERATIVE INTERFERENCE.

In considering the indications for operative interference in the brain, we must bear in mind first, the peculiar physical characters and relations of the brain and the mechanical and physical disturbances to which it is subjected; and secondly, its functional disturbances.

The brain differs from all other organs of the body in its physical characters and in its relations. It is softer, and its functions are more easily deranged by pressure, especially if the pressure increases rapidly. Its texture is more delicate, and the continuance and undisturbed performance of its functions are more vitally important to the ordinary activities of life than are those of any other organ. It is also more closely and firmly encased than any other organ. It is perfectly true that other organs have an envelope of greater or less resistance and density; for example, the eye is enclosed in the sclerotic, the testicle has the tunica albuginea, the structures in the palm are protected and to a certain extent enclosed by the palmar fascia, and the organs of the abdomen and pelvis, and those of the chest, are enclosed partly by bony and partly by muscular walls. If there is any increase in the contents, and, therefore, in the pressure within the eyeball, or within the tunica albuginea, either by inflammatory exudate, by suppuration, or by a new-growth, it is true that the envelope restrains them and produces compression, but the envelope will either yield or will be perforated with comparative ease; and, besides, even should the organs be destroyed, this does not involve life. If there is any similar increase in the contents, and, therefore, of the pressure within the chest, abdomen, or pelvis, there is plenty of room for an exudate, for pus, or for a tumor to form, without producing fatal pressure on the contained organs. If an abscess forms under the palmar fascia it can escape either under the annular ligament into the forearm, or posteriorly between the bones, and so relieve the pressure.

In the brain it is different. Not only is it a delicate organ, the integrity and functions of which are destroyed to a greater or less extent by any pressure unless quickly relieved, but the bony case which protects it is so firm and strong that, as a rule, long before it can be perforated and the dangerous pressure thus relieved, the brain will be rendered incapable of performing its functions, or life itself be destroyed.

In the case of increased pressure, both the brain and skull vary very much in their behavior according as the pressure increases acutely or increases slowly. For instance, when we have a rupture of the middle meningeal artery or acute hydrocephalus, the pressure will quickly cause coma and death; but in a case of chronic hydrocephalus, and sometimes of tumor, the increase is so slow that the brain accommodates itself even for a number of years to a gradually-increasing pressure, and if the patient be young, even the bones of the skull will yield without producing a fatal result until after a long interval. These considerations must have great weight in forming our decision.

In addition to these mechanical disturbances there are certain functional disturbances not caused by increased pressure, and probably the result of microscopical, and

[1] The opening of a discussion before the seventh annual meeting of the New York State Medical Association, held in New York October 22, 23, and 24, 1890.

even, as yet, undiscovered changes in the brain, which belong in another category.

Hence, in considering the question of operative interference from a clinical standpoint, the first great class of cases are those with *pressure-symptoms*, the second great class are those with what we may name, in default of a better term, *functional disturbances*.

In the first class, or *alterations producing pressure*, we may include abscess, tumor, effusions, and hæmorrhage. To these pressure-producing intracranial lesions (which are the only ones to be considered in the present discussion) should be added fractures attended by depression.

There is also another class of injuries, such as gunshot or other penetrating wounds, and lacerations of the brain-substance resulting from contusion, which produce very many of the symptoms that the lesions mentioned in the first class produce, as well as additional symptoms peculiar to these forms of wounds.

Among the *functional disturbances* may be mentioned epilepsy arising from traumatism and, therefore, usually attended by gross appreciable changes in the brain, though not necessarily by increased pressure; and, also, functional epilepsy in which there are no gross lesions. In the same class we should include inveterate headache, insanity, and other mental disturbances, and arrested development.

I will, therefore, briefly discuss, first, the indications for operative interference in the class of lesions attended by pressure-symptoms; and, secondly, the indications in those which are functional in character.

Lesions attended by increased intracranial pressure.—We can, in a few words, discuss the phenomena which attend intracranial pressure. First, the *intellectual function* suffers, and the patient becomes dull and stupid, and this stupor may gradually deepen into coma and total unconsciousness. Or, while consciousness is not affected, the faculty of speech may suffer, or ocular or auditory appreciation may be disordered. Secondly, there will be disturbance of *motility*, resulting either in paresis or paralysis of certain muscles or groups of muscles; for example, hemiplegia, monoplegia, or ophthalmoplegia. Thirdly, there may be changes in *sensation*, either over small or large areas. Fourthly, there will be changes in a majority of cases in the *optic disks*, and, possibly, in other parts of the eye-ground.

These phenomena will vary in detail, and will be more or less pronounced, according to the character of the case, and any one may be absent; but in no case can there be increased intracranial pressure to any extent without producing, wholly or in part, the picture I have so briefly drawn.

If to these pressure-symptoms we have added the phenomena peculiar to any one lesion, the diagnosis is well established. For example, in cases of tumor we will have the so-called cerebral vomiting, and, generally, headache and convulsions. In abscess we will very probably have a subnormal temperature and cerebral vomiting, a demonstrable cause in a long-standing otitis media, or a preceding severe fall or blow. In hæmorrhage from the middle meningeal artery we will have a history of a distinct traumatism, followed by that most important sign, an interval of lucidity, after which the coma will come on; while in ordinary apoplexy we have the age, atheroma of the arteries, and, what is usually equally important, the absence of traumatism. Besides all these general symptoms, there will be the localizing symptoms, which are of the greatest value.

If any lesion which produces increased pressure—which pressure, if unrelieved, will prove fatal—can be located, and, with reasonable certainty, can be differentiated from other conditions which produce more or less similar phenomena, and if the location is such as to render it accessible, our duty is clear: we should open the skull and remove the cause of the dangerous pressure, just as we open the abdomen, the chest, or the palm to remove pus, an effusion, a clot, or a tumor. The head has been too long regarded as something apart, something different from other portions of the body. What I wish to urge is that it should fall into line with the other cavities of the body. Subject, as it is, to the same diseases and injuries, it must be subject also to the same rules for surgical interference; modified in detail, it is true, but in no wise differing in principle.

It is perfectly true that our means for making a diagnosis are, in the head, greatly limited, as contrasted with other parts of the body. For example: inspection, as a rule, reveals nothing, whereas inspection of the abdomen, chest, or palm reveals a great deal. We are cut off from the use of touch by reason of the hard bony skull. For a like reason percussion is almost valueless, and auscultation useless. But we have, on the other hand, changes in far-distant organs which do not exist with other lesions. The paralysis of the hand, the arm, or the leg helps us to recognize and locate the lesion in the brain with an accuracy which, though not unimpeachable, is becoming more and more marked from year to year. So, too, the alterations of sensation in distant parts, and the lesions of the eye-ground are often equally valuable and equally certain.

Functional disorders.—There are, also, certain functional disorders in which we ought to interfere, and can often do so with advantage, though the indications in this class are as yet far less clear than in the case of pressure-producing lesions. Our ability to decide this often difficult question is also gradually but surely increasing.

The indications for operative interference may be thus briefly summed up: The disease must be, first, a grave danger to life, growth, or mental development, or must so destroy the comfort of living that life is not worth having. Secondly, it must be established in each case that the ordinary medical means have been exhausted, and that nothing further can be expected from drugs, diet, hygienic care, etc. Thirdly, the danger to life from an operation must not be so great that we may not run this reasonable risk in the hope of great improvement. It has been amply proved of late years that trephining *per se* is not an especially dangerous operation, provided that it be carried out with modern antiseptic precautions. When we go beyond simple trephining and open the dura it adds a little, but not a great deal, to the danger. When we take a further step and excise a portion of the tissue of the brain the danger is increased, and may be even greatly increased, but not to such a degree as to prevent our taking the step if a great gain is to be reasonably hoped for, and if there is great danger of deplorable and probably permanent mental and physical loss and deterioration without such interference.

Exploratory trephining.—In both classes of disorders, however, there are a considerable number of cases in which we are in doubt, either of the character of the lesion, its extent, its location, or of its physical characteristics. In these cases the same rule should hold good in the head as in other parts. If the danger is great, and especially if the result without interference is almost sure to be fatal, as is so often the case, intracranial lesions must now fall into line with lesions elsewhere, and we should perform exploratory trephining in order to make a correct diagnosis, and if the exploratory operation shows it to be possible we should remedy the condition found. The vital importance of the brain and the gravity of its lesions, while they should make us cautious, should also make the rule of exploratory operation even more imperative here than elsewhere.

This rule, however, must be modified in one important respect in intracranial lesions. In the abdomen, for instance, we need not be absolutely sure of the location of the lesions, for when the belly is opened its entire cavity is at our command. In the brain the conditions are very different. Exploration is limited to the exposed area and its vicinity. Hence the location of the lesion should at least be *probable* before we operate. But the extreme gravity of these intracranial lesions should embolden us to operate when the location *is* probable. If we wait until it is ascertained with certainty we must wait till a post-mortem examination clears up the diagnosis.

I should be loath to give the impression that I recommend, even to the best surgeon, reckless or indiscriminate trephining. Each case must be carefully considered, all the facts elicited, and the possibilities, the advantages and the dangers weighed; and if, having done this, the possibilities of gain outweigh the probable dangers, exploratory trephining is clearly indicated.

THE TECHNIQUE OF OPERATIONS ON THE BRAIN.

Shaving.—Under this head I wish to insist primarily on the need of shaving the head in order to determine the existence, number, and position of any scars. I have almost never shaved a head without finding several scars, with perhaps the history of only a single traumatism.

I cannot better illustrate this, I think, than by briefly narrating the following history of a case, the result of which I have also the pleasure of showing you in the person of the patient himself.

W. A., aged fifteen years, weight ninety-seven pounds, was seen in consultation with Dr. B. A. Watson, in Jersey City, September 28, 1888. A little more than two years before, the patient fell from a swing on to a stone step, striking on the top of his head and cutting the scalp badly. He thinks he was not unconscious. The wound healed in four weeks. Two months after the fall his first epileptic fit occurred. The bromides reduced the number of the fits to about one in a month, but when not taking bromides he had a fit nearly every day, usually beginning in the hands, but on which side could not be determined.

On shaving his head four scars were discovered, the principal one, an inch and a half long, beginning at the fissure of Rolando, one-fourth of an inch to the left of the middle line, and extending on the right side to one and one-fourth inches to the right of the middle line, the direction being slightly oblique and backward. A second but smaller scar was found one and three-eighths inches back of the fissure of Rolando, and two and seven-eighths to the left of the middle line. A third, still smaller scar was found at the same distance back of the fissure of Rolando and three-eighths of an inch to the left of the middle line. The fourth small scar was just above and one inch to the left of the inion. The size of the scars was in the order in which they are named, all but the first being small. All of the scars were slightly tender, the tenderness being most marked in the third. Under this scar an obscure indentation of the bone could be felt. Naturally one would suppose that the largest scar was the one acquired at the time of the only known accident to the patient which was followed so promptly by epilepsy.

It will be noticed that the history of the fits gave no indication as to the location of the cortical lesion. There had been no motor phenomena in the legs, though the principal scar was over the leg-centre, nor had there been any sensory or mental phenomena, such as word-blindness, word-deafness, agraphia, etc. The eye-grounds were normal. I should also add that the boy had been kept in the hospital under Dr. Watson's observation, but on no occasion could a fit be observed.

In view of the difficulty of localizing any lesion by the symptoms, and of the tenderness of the scars, I determined to excise the scars themselves and examine the bone, and, if I found reasons to do so, to trephine at any point where the bone seemed to have been injured. If the bone was found normal I would only excise the scars, and await the result.

On September 28, 1888, the scars were excised. The bone appeared uninjured and nothing else was done. For a short time after the operation the fits were absent, but then returned, and for months there were from one to four a week. Observation in the hospital again failed to determine their character, but the mother was now quite confident that the right side of the body was more affected than the left. Moreover, the boy had developed homicidal and suicidal tendencies. Accordingly, on September 7, 1889, at his own and his mother's urgent request, I performed the following exploratory operation:

Though the largest scar was chiefly on the right side, the symptoms seemed to point to the left side of the brain as the region of the trouble. I therefore trephined at the left end of this scar, half an inch to the left of the middle line, as close as I deemed prudent to the longitudinal sinus. A one-and-a-half-inch button of bone removed showed nothing abnormal in the bone. In order to determine next whether there was a lesion of the skull on the right side under the scar, I took Horsley's dural separator and swept it carefully backward and forward, hugging the bone very closely with the advancing edge, lest I should penetrate or tear the sinus, and thus I worked slowly from the left side across the sinus and one and a quarter inches to the right side of the middle line. I found the manœuvre not difficult and perfectly successful. I separated the sinus from the bone, the adhesions of the dura being much greater there than on either side. I also loosened the dura on the opposite side, and determined by the separator that there was no irregularity on the under surface of the skull cor-

responding to the principal scar, as far as one and one-fourth inches to the right of the median line and one and three-fourths inches from the edge of the trephine opening. The history and this examination convinced me that the two small scars on the left of the trephine opening were possibly, if not probably, the site of the trouble.

Accordingly I exposed the brain under my first opening. Here the brain appeared normal. Biting away the bone in the direction of the lesser scars and opening the dura the brain was seen to be abnormal over an area an inch in diameter and corresponding to the second scar. The abnormal area was whitish, as from an old inflammation, with, at one point, apparently a small cyst. In front and to the left was a distinct area of redness one-third of an inch in diameter. The whole of the abnormal area also was slightly depressed. Unfortunately the battery which we had would not work at the moment when we wanted to use it, and I was unable to determine the possible motor value of the convolution. As nearly as I could judge, it corresponded to the supramarginal, or possibly to the angular gyrus.

I then excised the abnormal part, which measured one inch antero-posteriorly, one and one-fourth inches transversely, and scant three-eighths of an inch in thickness. Immediately under this area, but half an inch deeper, I thought that I felt a spot of hardness which I removed with a Volkmann spoon. Examination of this afterward convinced me that my sense of touch was at fault, and that I had needlessly removed normal tissue.

The dura was now sutured, the large button and a number of small fragments of bone were laid upon it, and the wound was dressed as usual. The boy's highest temperature was only 100.6°, on one occasion, and in a week it fell to normal. His recovery was very rapid, a slight paresis of the right hand being the only apparent motor disturbance that remained.

Dr. Watson had the boy's eyes carefully examined, as I feared that I had injured the visual centre, or its radiating fibres, but there was neither ordinary blindness, word-blindness, nor apraxia.

Three months after the operation, I received a letter from the boy, expressing his thanks and adding that he had had no fits and was working for an express company. Since then he has followed the sea and been exposed to all its hardships. He has had no homicidal or suicidal tendencies. He has had only four attacks in nearly fourteen months, and the last one was more than three months ago. He has grown tall and robust. His hand is entirely well.

This case well illustrates the point I have made, that shaving the head is an essential preliminary to trephining. With the history of only one accident four scars were found, and the principal scar was evidently not the one corresponding to the cerebral lesion. In addition to this it shows that by the means I have described we can separate a sinus from the skull and reach across it to examine at least the bone, far away from the trephine opening.

Sublimate solution.—In connection with the preliminary preparation of the patient, I also desire to emphasize the fact that sublimate solution stronger than 1 to 2000, should not be used on the newly-shaven scalp. I have found that the ordinary 1-to-1000 solution pustulates the scalp; and even if there be no danger from it, it is the source of great annoyance which may easily be avoided. When the brain is exposed I discard all antiseptics and use boiled water only, not so much on account of the possible danger of poisoning as because the antiseptic lessens the reaction of the cortex to the electrical current.

Hæmorrhage.—The position of the patient is important. Mr. Horsley always operates with his patient reclining, not very far from a sitting posture, and I think that it is a good one, as it diminishes hæmorrhage, and hæmorrhage and shock constitute the two great dangers of cerebral surgery. The preliminary use of morphine and ergot diminishes the calibre of the bloodvessels and is certainly of value. The application of antipyrine and cocaine (ten per cent. solution) is of undoubted value, I think, in checking general oozing, but I doubt if it is of any more value than the application of hot water; and after all, it is not general oozing that troubles us so much as hæmorrhage from the large veins. Hence I think that both cocaine and antipyrine may be dispensed with.

For the arrest of hæmorrhage our chief reliance must be placed on the catgut ligature. With this the large vessels, and especially the large veins, should be double ligatured before division. After they have been cut it s very much more difficult to tie them. The hæmostatic forceps sometimes hold, but more commonly they tear away, which is followed by a renewed hæmorrhage, that is often controlled with great difficulty. The greatest care must be taken that the traction is equal upon each end of the ligature but that it is not too great—just enough to occlude the vessel and to retain their hold. To have room to cope with this formidable danger of hæmorrhage the opening in the skull must be ample. No vessel should be cut near the edge of the opening. If needful to cut it there the opening should first be enlarged by the rongeur forceps.

In addition to the ligature, hot water has yielded me very good results in many cases. But I am convinced that in at least one case I used the water too hot and produced cerebral disturbance which contributed to the fatal result. It should not be at a higher temperature than 120° F., if indeed so high.

Hæmorrhage from the superior longitudinal or from the lateral sinus is always alarming, and makes the operation speedily fatal, not only, I may even say not so much, from direct loss of blood as from the shock and the consequent loss of vitality of the nerve-centres. It recently happened to me to wound one of the large veins at its junction with the superior longitudinal sinus, in spite of the fact that I thought I was quite far enough away from that dangerous region. The reason for my being so unexpectedly near it was that in consequence of defective development the sinus was half an inch to one side of the middle line. I had recognized the defective development and had allowed for the displacement of the sinus, but as the result proved I had not allowed enough. The hæmorrhage was very severe, but was quickly controlled by a pair of hæmostatic forceps. During the later manipulations the forceps were detached, when another rush of blood came, and, although this, within a few moments, was controlled in the same way, the patient became moribund and died in fifteen minutes after the speedily-terminated operation, and about half an hour after the hæmorrhage

occurred. The amount of blood lost was perhaps between eight and twelve ounces, an amount that the patient could have lost from the arm or from a wound in the scalp, without such direful consequences. Hence the large veins should be carefully avoided, especially near the middle line where they empty into the sinus, and if they must be divided it should be only after two ligatures have been applied.

Should the sinus itself be wounded one of three courses is open to us. The first, adopted by my friend Dr. W. J. Taylor during the past summer, is to seize the edges of the sinus by the hæmostatic forceps, and let the forceps remain *in situ* for two or three days. The second is to pack the sinus, as many surgeons have done, and in most cases successfully. The third is to tie the sinus with two ligatures, one on each side of the wound, as has been done in a few cases.

The last manœuvre, however, is much more difficult in abundant hæmorrhage following a wound of the sinus, than as a preventive of hæmorrhage when the sinus is to be deliberately cut across. The deliberate ligation of the sinus has been done a few times, once in a very remarkable recent case related to me by Mr. Horsley, in which he removed a large part of the frontal and of the squamous portion of the temporal bone, tied and divided the sinus and lifted the frontal lobes, thus gaining access to an aneurism at the base of the brain, pressing on the optic chiasm, for which he ligated both carotid arteries; a surgical feat only equalled in its daring by the brilliancy of the diagnosis, which was verified by the operation. The patient, when I last heard, was recovering from the operation. Whether he will recover from the aneurism time only will show.

Not uncommonly after trephining, the cut edge of the bone bleeds very freely. To arrest this, Mr. Horsley informs me that he uses a paste or putty made as follows: Melt repeatedly one part of yellow wax and four of vaseline. Next, add carbolic acid one part to twenty of the wax and vaseline, and mix intimately. Then add sufficient white wax to make a mass that will be hard when cold, but that can be quickly softened by the fingers. With this (kept disinfected, of course) he "putties up" the vessels in the edge of the bone.

Drainage.—Whether drainage shall be employed, is an important question. In abscesses and other suppurative cases, continued drainage must, of course, be employed, but in ordinary operations I think the question must be decided in each case chiefly by the amount of hæmorrhage. If hæmorrhage has been arrested so that the wound is almost dry, drainage may be safely omitted. Mr. Horsley tells me that he has omitted drainage in all his recent cases. This is certainly the ideal operation, and the end toward which we all strive. In order, however, that we may do without drainage, the hæmorrhage must be checked to such a degree that only slight oozing if any remains when the wound is closed.

Exploring for abscesses.—As I have pointed out in former papers, the direction of exploration should not be obscurely described, such as "downward and a little inward and forward, etc.," but in a definite dirction from the opening—*e. g.*, in the direction of the external angular process, the opposite pupil, an inch above the opposite external auditory meatus, etc. The reader then can locate the abscess when he knows the point of departure, the direction of the puncture and its depth. I have also given my reasons for preferring a grooved director to a needle in such exploratory punctures.[1]

Avoidance of shock.—I am persuaded by no little experience that in the head, more than in any other part of the body, we must bear in mind the lessons taught us by Dr. Cheever in his admirable paper on Shock, read before the American Surgical Association in May, 1888. He there urged that one of the important elements of shock was the time consumed in operation, and this applies especially to operations on the brain. A cerebral operation is always time-consuming, and this is especially bad in view of the prolonged anæsthesia. It is of the greatest importance, therefore, to abridge the time whenever it can be done.

Accordingly, I always raise the periosteum with the flap, instead of dissecting the two separately. Next, one of the most important elements in time is that required for trephining. The tendency has been of late to use very large trephines. I have commonly employed the one and one-half inch trephine, and I am persuaded that anything larger than this cannot be used with advantage. I have tried a two-inch trephine, but have found that it required a longer time than if I had made two or three one-inch trephine openings, and then bitten away the bone with the rongeur forceps to any further required extent. This arises from its becoming fastened in the bone, from the impossibility of adapting it well to the curved surface of the skull, and to the different thicknesses of the bone in different parts of its circumference. I have tried also to hasten the operation by using a surgical engine, but have found it not a practicable instrument. Mr. Horsley has recently devised an adaptation of the electric motor for working the trephine, with what success I do not know. The brace of a brace-and-bit has also been adapted to the trephine, with what advantage I cannot say. I am greatly inclined, however, to the opinion that the small trephine, one inch, or an inch and a quarter, and the later use of the forceps to bite away the intervening bridge, and afterward, if needful, still further to enlarge the opening, is the better practice, especially with a view to speed.

It is all-important also to use the battery in every case to identify the convolutions which are exposed, in order to determine in the human brain the motor value of the convolutions, if possible. In doing so, the graduated band of the fissure-meter should always be used to measure the distance of the convolution stimulated from the middle line, and from the fissure of Rolando or other well-recognized fissure. But while such determination of the motor value is important, it should not be made with too strong a current; the strength should be such as would freely move the operator's thenar eminence but no more. Nor should the time be wasted in repeated applications, further than is necessary to determine the facts. I mention the exact measurement to determine the situation of the stimulated area, because in a number of recorded cases, including some of my own, the value of such determination was practically lost by the inexactness with which the centres were located.

[1] Transactions of the Tenth International Medical Congress, and THE MEDICAL NEWS, December, 1, 1889, and September 10, 1890.

The dura may be sutured by either interrupted or continuous sutures, whichever will enable the surgeon to terminate the operation most speedily.

In addition to this the use of rest and of external heat from the very beginning of the operation, and of strychnine to prevent shock, and of alcohol, digitalis, and atropine to relieve it, have been forcibly advocated by Dercum,[1] and should certainly be tried.

Replacing the bone.—The question of closing the trephine opening by bone, is in my mind still a somewhat undecided one. In all the cases in which I have done it there is a flat surface instead of the normal arched contour of the skull. I have not been able to see, however, that it has produced any trouble, and it certainly acts as a valuable protective. In those rather obscure cases of headache and allied disorders, in which, perhaps, the chief value of the trephining lies in the alteration of intracranial pressure, the bone should not be replaced. In all other cases I have replaced it without any deleterious results, and I am inclined to think with advantage.

If the bone is to be replaced provision must be made beforehand for its care by placing it in a 1-to-2000 sublimate solution, and it should be the sole duty of one assistant to see that this is kept at a temperature of between 100° and 105° F., by means of hot water outside the cup or bowl in which the bone is placed. I have never had any trouble in replacing a disk as large as an inch and a half, and I prefer to do this than to spend time in chipping it up. But if the bone be greatly thickened it should not be replaced in mass, but either bitten into small pieces, or if the bone be diseased it should be rejected entirely. The suggestion of Senn to close the opening by means of decalcified bone is a valuable one, especially where there has been a prior loss of substance. It has also one marked advantage in that it can be better fitted to the opening than ordinary hard bone.

RESULTS.

These I will consider as to each disease or injury as briefly as possible. I shall not use the statistical method, but shall rather give the general conclusions I have reached, based both on my own experience and on a fairly thorough acquaintance with the literature of the subject. The topics, as announced, exclude from this paper the consideration of fractures of the skull, but I cannot help congratulating the profession on the development of cranial surgery in the treatment of these extremely serious injuries, and to urge that operative treatment shall be used more freely than formerly, not only with a view to the immediate saving of life, but to the prevention of later disorders, especially of epilepsy.

First, *Abscess.* No good surgeon will now hesitate to operate in a case of abscess of the brain. If there have been chronic middle-ear diseases or a serious local traumatism, followed by stupor and other evidences of intracranial pressure, paralysis of the oculo-motor nerves, choked disks, subnormal temperature and possibly hemiplegia, the surgeon should undoubtedly trepine, puncture, evacuate the abscess, drain and dress in the usual way. It is not so much a question of percentage as it is that every case which recovers is just one life saved which under the old method of treatment would inevitably have been lost. The question, "Where shall we trephine?" starts again the urgent cry for more accurate means of diagnosis, a cry that will not be suppressed until neurologists answer it satisfactorily.

Secondly, *Tumors.* Practically the same remarks will apply here as in abscess. Every case that recovers is a life saved from inevitable death in case we do not operate. The results have been on the whole, thus far, encouraging. Even very large tumors have been removed successfully, and a number of patients are still alive after several years. On the other hand, while a moderate number have died, there is again a not inconsiderable number that have suffered from a return of the original disease, and what is still more mortifying, there have been a number of tumors sought for and either have not been found, or have not even existed.

Here again we must ask most earnestly for the help of our neurological brethren, and happily we are not asking in vain. You will hear from some of them about to follow me the means for determining the location, the size, the number, and other characteristics of tumors and other intracranial lesions—means which become year by year more and more exact. We learn by our failures more than by our successes. Each case should be put on record, therefore, as a means of avoiding similar pitfalls. The technique of operation is now fairly satisfactory, though not yet perfect, and its dangers have been minimized, so that we no longer fear the operation. But what we need above all else to-day is a more accurate means of diagnosis.

Tumors will sometimes be met with that are too large for removal. It is extremely desirable that the neurologist shall be able to make a diagnosis of the approximate size of the tumor before the operation. But with our present knowledge it is too much to ask that this shall be done with absolute accuracy. Hence, unless it is almost certain that the tumor is too large it would be justifiable at present to attack it, for we may be mistaken, the tumor not being as large as had been anticipated and its relations with the brain much less intimate than had been supposed, and if so we may be able to remove it successfully: and if not, with modern methods in most cases the patient will recover from the operation, and in several recorded cases they have even been bettered by the attempted yet abandoned operation.

Again, it may be that tumors are erroneously suspected to be multiple, and hence not amenable to operation. Here, again, it is sometimes wise, inasmuch as tumor of the brain is a certainly fatal disease, at least to attempt the removal for the same reason as that just stated.

Tumors may be of such character that presumably they have infiltrated the tissues, so that a return will be certain after a very short interval. Here, too, we may be in error. Even in the case of a sarcoma, no infiltration may exist. I have lately had a case in point. Although the fall, which was the probable cause of the tumor, left no scar to mark the site of the blow, the diagnosis of the location of the tumor was exact. It was large, and the diagnosis had been that either one large tumor or two smaller ones existed. The nature of the tumor was doubtful but presumed to be tubercular, but the grounds upon which this diagnosis was made were not very certain.

[1] THE MEDICAL NEWS, September 21, 1889.

The post-mortem examination showed that the tumor was large and situated in the area in which it was believed to exist, but even the slight manipulation for the removal of the brain produced auto-enucleation of the tumor. That it could have been removed by operation is very certain, and I have since deeply regretted that I declined to operate. The tumor was a sarcoma, and the microscopical examination showed that the walls of the cavity in which it was contained were not infiltrated with the sarcomatous growth. Whether, in spite of this, the removal would have been followed by permanent cure is doubtful, but the patient should at least have been given the chance.

Much doubt has been expressed as to the advisability of operating upon tubercular and syphilitic growths, but cases have been reported in which both were successfully removed. The argument in favor of operating on syphilitic growths is stronger than in the case of tubercular tumors, for the reason that tubercular tumors are more likely to be multiple than any other variety.

The depth at which a tumor lies is another important point. The deeper it is situated the less accessible it is to operation; and here, again, we must invoke the aid of the neurologists. I have operated on one case in which the evidence seemed to be pretty clear that the tumor was in the cortex of the angular and supra-marginal gyri. At the operation it was found to be underneath these gyri, but at such a depth as to render its extirpation impossible, and the patient died a few hours after the operation.

Perhaps the greatest opprobrium of cerebral surgery and the best proof of the need of more exact means of diagnosis is in the number of operations in which either no tumor was found, or it lay in a wholly different position from that which had been diagnosed. I have never yet operated upon a case in which no tumor existed, but in one case the tumor was believed to be in the cerebellum, and the post-mortem examination showed that it was in the floor of the third ventricle.

In one locality it is a question whether tumors, unless they are small and accurately diagnosed, can be removed with safety—namely, in the cerebellum. A few such have been operated on, but all proved fatal. In one case[1] I suspected a tumor and sought it, not by a formal operation, but by a slight opening in the skull and probing of the cerebellum, both through the exposed lobe and obliquely into the opposite lobe without any resultant injury. The post-mortem examination showed that the tumor was a soft sarcoma, and that my probe had passed through it without detecting its presence. But had I detected it and attempted its removal, the large vessels supplying it and its intimate relations to the fourth ventricle make it probable that the patient would have died upon the table. The structures in the neighborhood of the cerebellum and the fourth ventricle are so vital that I doubt whether we shall be able to cope with their dangers successfully, except, as I have said, in the case of small tumors, situated well back in the cerebellum and indicated by such symptoms that we can diagnose them accurately.

Epilepsy.—The most frequent disorder in which our advice is sought as to the propriety of operation is epilepsy. In cases of traumatic epilepsy the results have been, on the whole, very encouraging. A considerable number of cases are on record, some of them very severe, in which the patient was entirely relieved of his dreadful malady; and, while idiopathic epilepsy has not yielded such good results, they have been sufficiently encouraging to warrant our persisting to operate in well-selected cases.

The results, I think, in general, may be summed up as follows. First: Taking one operator with another, a small percentage of cases will die from the operation. Secondly: In a small but somewhat larger percentage absolutely no result, good or bad, will follow recovery from the operation. Thirdly: In a large percentage of cases the patient, while not cured, will be benefited, the fits persisting, but with lessened frequency and violence. Fourth: Perhaps in twenty-five per cent. more or less the result will be practically a cure. If I may judge from the feelings of the parents and of the patients also, the opinion of those most interested is that the operation is justifiable, because the malady is so dreadful. Even if the patient is not benefited no harm is done, and whether he is benefited, cured, or dies, both he and his friends are content.

One thing especially should be noted. It has been used as an argument against operating that the removal of diseased tissue will result in a permanent paralysis, and that the patient pays dear for the cure; and that he may not only be cured but have the additional affliction of a useless arm or leg. This is not my experience. The paralysis which follows the excision even of a motor centre is only temporary. One of my patients whose hand was absolutely paralyzed immediately after the operation, had so far recovered its use after between three and four months that he could play baseball; another is able to use his hand well though it is slightly paretic; and a third is scarcely conscious that his hand was ever affected.

Whether, as is most likely, this recovery of function is due to the development of the bilateral function of the corresponding centre on the other side, or whether, as seems less likely though not impossible, new cerebral tissue has been developed, is not certain. The recent experiments of Prus,[1] Salviati,[2] and Gilman Thompson[3] show that portions of the cerebral cortex can be successfully transplanted from one animal to another. Possibly this may hereafter lead us to a more perfect restoration of motor function, by a similar transplantation from an animal to man.

Hæmorrhage from the middle meningeal artery.—Hæmorrhage from the middle meningeal artery even without fracture is now an accident amenable to operation and not uncommonly with success. I would especially urge that if the clot is not found by the first trephining a second trephine opening should be made, as is advocated in the able paper of Krönlein.[4] The site of these openings should be, as he has indicated, first one inch behind the external angular process at the level of the upper border of the orbit, and, failing to find the clot, secondly at the same level and just below the parietal

[1] Transactions of the International Medical Congress, 1890. THE MEDICAL NEWS, September 20, 1890.

[1] Annals of Surgery, vol. ix. p. 225.

[2] Wiener Medical Presse, No. 20, 1889, p. 838.

[3] New York Medical Journal, June 28, 1890.

[4] Deutsche Zeitschrift fur Chirurgie, Bd. 23, Hefte 3 u. 4, 1886.

boss. The two openings give access to the two branches of this vessel.

The accident, if untreated is necessarily a fatal one. The operation, while by no means always a success, has resulted most brilliantly in several cases, and its lesson is evident: that the surgeon should always at least endeavor to save life by trephining and ligature of the bleeding vessels.

Surgery of the lateral ventricles.—I have so recently and fully considered the question of the surgery of the lateral ventricles[1] that I need not here repeat what I have said in that paper, saving to urge that a trial be given to the method I have advocated, until its value or its worthlessness shall be determined.

Inveterate headache.—Cases of inveterate headache which have resisted all other known means and still make life unbearable are as yet in the category of undecided questions, judged by the results. Enough cases, however, have been recorded to show that trephining is well worth a trial until the value of the operation shall be determined.

Mania.—In mania following traumatism it is certainly right to attempt relief by a carefully conducted exploratory trephining. Should death follow, it is a relief from a condition worse than death, and should relief and cure follow, as has already been the fact in a number of cases, it is a brilliant triumph. The evidences of the site of the injury guide us to where to operate.

Arrested mental development.—In cases of imperfect mental development, from arrested growth or, as in the case of Hare and Felkin,[2] from a cyst following an injury, the result of operation has been such as to encourage us, but excepting those cases which follow traumatism I cannot look with great encouragement to the future of cerebral surgery in this direction. Whether the remarkable result of craniectomy recently recorded by Lannelongue[3] will show that we ought to give room for the growth of the repressed organ, must, in the absence of further evidence, remain for some time an open question. The same remarks apply to trephining for general paralysis.

DISCUSSION.

DR. JAMES J. PUTNAM, of Boston, called attention to the relative value of certain signs of cerebral tumors, especially of such tumors as are a little outside of the familiar areas of the central, temporal, and occipital zones, and only infringe upon these, so that the symptoms would be liable to occur rather late in the progress of the case. It is generally admitted, he said, that monoplegias and localized hemiplegias are more valuable as localizing signs than monospasms and localized convulsions. A paralysis gives fairly positive evidence that the whole cortical area corresponding to a set of movements is destroyed; whereas, a localized convulsion may be due to an irritative lesion in the tissues adjoining the area in question, or at a distance from it, or even to an unstable nutritive condition of the cortical area without gross lesions.

In accordance with a similar course of reasoning, the speaker said that a distinction could be drawn between the different localized paralyses on the one hand, and localized convulsions on the other. Those functions of the brain which are relatively highly specialized and complex in character, are more likely to suffer disturbance than the less highly specialized and complex functions. Thus, Hughlings Jackson long ago pointed out that, given an irritation of the arm- or in the leg-centre leading to an epileptic attack, the attack would be most likely to begin in the thumb or fingers in the one case, and in the toes in the other.

According to this statement, a localized convulsion or paralysis of the shoulder would have a greater localizing value than a convulsion of the muscles of the hand, and hence would indicate the presence of an irritative lesion of the shoulder-centre more surely than a convulsion of the muscles of the hand would indicate a lesion of the hand-centre. This the speaker believed to be true. Ordinarily an error in connection with this would not be of much importance, as the operation would in all probability be successful, and the mistake never be discovered. The mistake would be important, however, if the convulsions were caused by pressure transmitted from a considerable distance, or by œdema or anæmia. This occurred in a case of the speaker's, in which Dr. H. N. A. Beach had operated as a last resort for a supposed tumor of the frontal region. He was led to this diagnosis by the occurrence of repeated attacks of speechlessness, which were wrongly interpreted as motor aphasia, and by a twitching of the fingers of the right hand, associated with slight but distinct paresis of the extensors of the fingers. At the autopsy the tumor was found at the inferior parietal lobule just in front of the angular gyrus, and separated by a space of three-fourths of an inch from the motor area. In another case there were convulsive movements of the shoulder, not attended by loss of consciousness, and occurring only once late in the case. Had movements occurred several times, it would have been considered proper to operate, and had this been done, the tumor would have been found directly in the field of operation. The speaker wished to emphasize his belief that this shoulder convulsion might have been considered as a localizing sign of great value.

Direct and important physiological evidence also is not wanting in favor of the statement that the cortical areas corresponding to highly-specialized movements have a special irritability. Thus, Panett found that the visual centres in the case of a dog were more irritable to electricity than were the other areas; so much so, that it was a disturbing element in some of his experiments.

A patient was recently treated at the Massachusetts General Hospital, in the service of Dr. A. T. Cabot, for a severe fracture of the occipital bone, leading, as the autopsy showed, to multiple contusions and small hæmorrhages with softening, over the surface of both hemispheres. The speaker carefully examined the brain, and found that the motor areas of the hands were not involved in the gross lesions; and yet the night before the patient's death, although able to move his arms freely, he showed a striking paralysis of motion of the fingers, and especially of the extensors.

On these grounds, and in accordance with the principle he was trying to illustrate, Dr. Putnam suggested

[1] Transactions of the Tenth International Medical Congress, Berlin, 1890; THE MEDICAL NEWS, September 20, 1890.

[2] Manchester Med. Chronicle, October, 1889.

[3] Lancet, August 9, 1890, from l'Union Méd., Paris, July 8, 1890.

that spasm of the extensor muscles and paralysis of the flexors are probably more valuable than the reverse condition as localizing signs of the cortical lesion.

The *comprehension* of speech is certainly a more fundamental element of the language-function than the *power* of speech, for it is earlier and more readily acquired, and requires less subtle and perfectly-adjusted cerebral activity for its maintenance, and the so-called auditory aphasia or loss of the comprehension of spoken language is a more valuable localizing sign than motor aphasia. The doctrine of sensory aphasia would be more generally recognized were it not for the strong influence still exerted by Broca's remarkable discovery, which, in the minds of most medical men, chains every disorder of the speech-function to the notion of a lesion in the third frontal convolution. As a matter of fact, the function of speech is liable to betray the presence of cerebral disorders, either far from or near to the motor speech-area. Not only does the loss of auditory impressions entail aphasia, but the loss of visual impressions may have a similar effect.

The speaker then briefly referred to some interesting experiments on the effect of quickly recurring stimuli upon the irritability of different cortical areas.

Unilateral neuritis has been considered by some to be of significance as indicating the presence of a tumor of the opposite side of the brain; but, in Dr. Putnam's experience, and in that of a number of others whose cases he had found recorded, the reverse condition was present.

DR. CHARLES K. MILLS, of Philadelphia, said that the failures and errors in the present method of localizing intracranial lesions are caused as follows: First, by attaching too much importance to certain classes of symptoms, which are regarded as determinative of the site of the lesion, as, for example, the so-called signal or initial symptom. Secondly, by considering symptoms of late invasion only. Thirdly, by attaching relatively too much importance to motor localizing symptoms. Fourthly, by overlooking multiple or diffused lesions. Fifthly, by operating on incurable cases of arrested development. The so-called signal or initial symptom of brain tumors, while of great value, has sometimes proved misleading. The motor signal symptom has been made use of in a large number of cases to guide the surgeon, and sometimes successfully, but almost as often unsuccessfully. It should be remembered that in every case of unilateral spasm and of monospasm, whether reflex, dural, nephritic, toxic or hysterical, the spasm really or apparently begins with an initial symptom in the limb or face. This may indicate that the beginning of the cerebral discharge occurs in the area of the cortex which controls the movement, but it would be unwise to operate with such an indication. Occasional conjugate deviation of the eyes and head has been used as a guide to operation, and is one of the errors into which a thoughtless neurologist might be led.

In making a diagnosis as to the existence of hæmorrhage, we must depend largely upon general symptoms. This is also true of the diagnosis of tumors, and still more true of abscesses. A number of mistakes have been made in trephining for tumor or abscess by the operator being too much guided by motor symptoms, which were really the result of the diffusion of the lesion to the motor areas.

In not a few cases of cerebral abscess, sensory or special symptoms might cause a decision in favor of operating, and at the same time might not properly guide the operator to the seat of the lesion. All active localized symptoms of the brain, the result of mastoid or aural disease, except, perhaps, word-deafness and left-sided affections, are the result of the extension of suppuration. Few physicians have escaped from mistakes in cases in which a large lesion either in the frontal or temporal lobe caused prominent motor symptoms by pressure, either upon the motor tracts in the capsule or upon the cortical areas and their tracts. In one case of this kind, all the symptoms pointed to brachial or crural monoplegia, due to tumor with intercurrent hæmorrhage. The autopsy showed a tumor with a large hæmorrhage, strictly confined to the right temporal lobe, but evidently causing great pressure. Several recorded failures were the result of overlooking the pressure of multiple or different lesions.

Operating in cases of tubercular disease of the brain, vessels, or membranes, has also been a source of error and cause of failure. It is, in most cases, an error to operate, guided by certain localizing phenomena, in the spastic and paralytic, congenital and early infantile affections. A careful review of the surgical operations guided by the rules of localization in whole or in part, show that probably the greatest success during the last few years has been in trephining for hæmorrhage. In traumatic cases failures have occasionally resulted, and for several reasons, chiefly because the fact is not fully considered that in many cases of depressed and non-depressed fractures hæmorrhages take place, not only at or in direct connection with the place of injury, but also at various positions more or less remote.

DR. JOHN B. ROBERTS, of Philadelphia, said that the impulse given to cerebral surgery by the wonderful results of the last few years, has been the means of saving life in many cases of traumatism, but he believed it had slain about as many of those who had been the subject of obscure lesions. It is well that the pendulum has swung the other way, and that cases are being selected with greater care and judgment. In cases of foreign body, such as gunshot wounds of the brain, it is generally agreed that operative interference is indicated, and that an exploratory trephining should be performed, not only for the removal of the foreign body, but also for drainage, which, after all, is often more important.

The speaker then referred to the importance of keeping the nose, pharynx, and similar channels leading to the seat of fractures of the skull as nearly aseptic as possible, for he thought that neglect of this precaution has been the cause of many cases of suppuration within the skull.

When symptoms of abscess are present, even if there are no clinical evidences of ear-disease, it is proper to open the mastoid process and search for a purulent focus before exposing the brain. If this should be found, it would make it almost certain that there was an abscess in some portion of the temporal lobe, and then an exploratory trephining would be indicated.

The jamming in the bone which occurs with the use of large trephines can be avoided by the use of the "segment trephine," which the speaker described some time ago, but much of the difficulty is frequently

due to the fact that the trephine is not sharp. The ordinary trephine cannot be rendered surgically clean except by baking or steaming, but by employing the "aseptic trephine," which has no centre-pin, this difficulty can be overcome.

The results of these operations are often very brilliant, as in those reported by Macewen, of which one patient was living eight years after the removal of a tumor, and another one year after the removal of a tuberculous growth. The most unsatisfactory cases are those of epilepsy, except cases of traumatic origin, which are often treated most successfully by operation.

DR. JOSEPH D. BRYANT, of New York, in considering the question as to the present means of localizing intracranial lesions, limited the term *lesion* to abscess, hæmorrhage, depressed bone, and tumors of intracranial origin. He classified the means of localizing these lesions into topographical, physiological, and instrumental. The topographical means relate to the connection existing between the established landmarks and lines of the cranium that bear a positive relationship to the superficial parts of the encephalon, many of which parts have had definite functions already assigned to them. The physiological relate to the establishment of the site of the pathological process by studying the deviation of the function of a part from the normal as the result of a local disease or injury. The instrumental means are largely subsidiary, and their application is often more of an experimental than of a practical character. The speaker then described several cases bearing on the subject, and concluded with the following summary:

(1) That a small and presumably circumscribed injury of the brain at the upper end of the fissure of Rolando may excite a cerebral disintegration sufficient to involve the motor centres associated with this fissure, without causing notable constitutional symptoms. (2) That aspiration of the brain as a means of diagnosing the extent or situation of an abscess is of uncertain utility, even when a moderately large needle is used, and that the employment of the ordinary hypodermic needle for this purpose is entirely unreliable and misleading. (3) That extensive fissures may occur at some distance from the seat of the violence causing them, and that their existence may remain unrecognized unless carefully searched for. (4) That extensive and fatal complications may be caused at a considerable distance from the seat of an apparently innocent injury of the skull. (5) That when paralysis involving the motor areas of the brain follows an apparently trivial injury of the head, an operation at the seat of these areas is indicated if only for the purpose of exploration. (6) That the removal of a compressing blood-clot is not necessarily followed by improvement of the symptoms of compression, and that if the brain does not soon resume the normal relation with the skull, death will ensue.

In one of the cases cited, the patient immediately after being struck on the head with a bottle, lost the power of speaking his own name, but was able to write it as well as the name of his assailant. When admitted to the hospital, he had forgotten his own name, and that of many things. An examination of the injury disclosed a small circumscribed depressed fracture of the skull located near the lower end of the fissure of Rolando. On the following day the depression was elevated, and all the aphasic symptoms disappeared. This case impressed the fact that the effects of a circumscribed compression due to trauma may be limited to one motor centre only.

DR. THOMAS H. MANLEY, of New York, divided intracranial lesions into two classes, namely, those of extrinsic and those of intrinsic origin—those arising from violence or mechanical influence, and those resulting from pathological changes within the skull. Dr. Manley's remarks were chiefly confined to traumatic lesions, but with slight modifications they were applicable to intracranial new-formations. There may be grave symptoms, he said, from injuries of the head, without the skull being implicated; and, on the other hand, the bone is often shattered into many fragments and driven through the meninges and into the brain, and yet no single symptom indicative of cerebral disturbance be manifest. This is frequently observed in military surgery, and is often very conspicuous in young children. In general, in cases of depressed fracture, trephining is indicated and is readily performed, but if the fracture is situated over a sinus it may cause sudden and even fatal hæmorrhage. He thought it poor practice to replace the bone that is removed, for of all parts of the osseous system, the skull has the feeblest power of regeneration, and the union with the adjacent parts which seems to take place is probably not osseous.

The question of hæmorrhage is important, and he believed that in his fatal cases this was a prominent factor. As hematomata of moderate size are as readily absorbed here as in other parts of the body, in cases of intracranial lesions with intracranial hæmorrhage, trephining for displacement of the clot is not only unnecessary, but is illogical and dangerous. Within the last year he has trephined four children who had general traumatic meningitis; two being trephined in consequence of the diagnosis of cerebral abscess. The brain-substance was deeply penetrated, but nothing was found, and the post-mortem examination on the following day showed only general meningitis. The other two cases did not survive over forty-eight hours. The loss of blood, together with the lethal action of the anæsthetic, materially shortened their lives. He has found meningitis very prone to develop after cranial injuries in young children when antiseptics are used; and since he has discarded them in these cases, and kept the head well covered with ice or cold lotions, it has been much less frequent.

When the use of the trephine causes much laceration of the brain-substance, the exposed part gradually disintegrates, and is absorbed, which may be followed by symptoms of impaired mental powers. When the area of destruction is small and unimportant, a young and healthy patient may completely recover.

Of all the organs in the body, there is none in which the effects of an anæsthetic are so evident, both by subjective and objective phenomena, as in the brain. When a patient enters the lethal stage during etherization the vascularity of the brain is enormously increased, as shown by the great increase of the volume, the convolutions rising and crowding into the aperture made by the trephine. As the ether is withdrawn the brain becomes less hyperæmic, and returns to its normal

dimensions. One can easily understand that manipulations involving the brain under these circumstances must be always attended by serious difficulties, the vessels giving way under the most trivial disturbance, and causing profuse hæmorrhage. Independently of the effects of the anæsthetic on the vascularity of the brain, is its influence on the nerve-centres, when the brain is injured or diseased; so that ether cannot be otherwise than harmful.

ORIGINAL ARTICLES.

THE CONTROL OF HÆMORRHAGE DEEP IN THE PELVIS, WITH THE REPORT OF A CASE OF OVARIOTOMY.

BY CHARLES P. NOBLE, M.D.,
SURGEON-IN-CHIEF TO THE KENSINGTON HOSPITAL FOR WOMEN, PHILADELPHIA.

AT times it is desirable to have a method of controlling hæmorrhage deep in the pelvis, in addition to the usual methods of securing the bleeding point. Owing to the relative inaccessibility of the region, and to the fact that the hæmorrhage itself tends to obscure the field, it is often extremely difficult or is impossible to employ satisfactorily the ordinary methods of hæmostasis. When it becomes necessary to ligate fleshy pedicles, subsequent shrinkage of the tissue within the pedicle may permit bleeding. Also, when there are extensive raw surfaces on the broad ligament produced by the separation of densely-adherent tumors, or left after the removal of the ovaries and tubes disorganized by suppuration, and in certain cases of extra-uterine pregnancy, free oozing may occur, and is difficult to control by strictly local methods. In such cases stuffing the pelvis with gauze has been employed. In hysterectomy, with the intra-peritoneal management of the stump, and in myomectomy, the danger of secondary hæmorrhage is well recognized.

In such cases securing the ovarian and uterine arteries gives a control of the situation not attainable in any other way. In the case of oozing fleshy pedicles it is a necessary measure. The same is true of oozing raw surfaces on the broad ligaments. In case of active hæmorrhage, primary or secondary, in which the bleeding point cannot be readily secured, the ligation controls the hæmorrhage and gives time to secure the bleeding vessel. The method is particularly valuable when the broad ligament is fixed by exudate.

This procedure was brought to my attention by seeing Dr. H. A. Kelly employ it in several cases, and with very gratifying results. Since then I have adopted it twice with great satisfaction.

Mrs. X., aged thirty-seven years, has had three children and one miscarriage. Her health was good until January, 1890, when she had *la grippe*. Following this she suffered very much from bronchitis and dyspepsia, and rapidly lost strength, being finally obliged to go to bed. In March she came under the care of Dr. Minich, who, finding an abdominal tumor, referred the case to me.

I saw her April 7th, and found her a large, fleshy, very anæmic woman, with hurried, anxious breathing and quick, feeble pulse. The belly was enormously distended by a tense fluctuating cyst. Operation, after preparatory treatment, was advised, and she entered the Kensington Hospital for Women, April 14th. A severe cough with consolidation of the middle lobe of the right lung immediately developed. The temperature ranged from 99° F. in the morning, to 103° F. at night. Profuse night-sweats and orthopnœa prevented sleep. The condition of the lung, following *la grippe*, it was thought explained the general symptoms. Under stimulating expectorants, digitalis, stimulants and food, with counter-irritation over the chest, the lung slowly cleared up, the cough disappeared, and the appetite improved, but the septic symptoms remained the same. In spite of the entire absence of abdominal pain, no rational explanation of the sepsis was apparent except some inflammatory process connected with the cyst. Accordingly, notwithstanding the bad general state of the patient, section was made, under chloroform, May 10th.

On tapping the cyst fifteen quarts of puriform material were discharged. The cyst, which was non-adherent, was delivered and found to be deeply situated between the layers of the right broad ligament, and to require ligation over a surface of eight inches. A series of twenty-two interlocking ligatures was applied from the pelvic wall to the uterus, in the form of an arc owing to the deep development of the tumor.

The tumor was now cut away. As the tissues were very vascular, to provide further against hæmorrhage the ovarian and uterine arteries were ligated in their course. A ligature was passed through the broad ligament on one side of the ovarian artery, and back through the ligament on the other side of the artery, and the vessel was thus securely tied. A ligature was then passsd through the broad ligament close to the uterus, and again through the ligament to the distal side of the row of ligatures in the stump, and in this way the uterine artery was secured.

A sessile cyst of the left ovary (containing about a quart of fluid) with a broad attachment, likewise required a series of interlocking ligatures, fourteen in number. The left ovarian artery was tied in the same way as the right one. Hæmorrhage was in this way entirely controlled, and scarcely a drop of blood oozed from the extensive raw surface.

The extent of the raw surface was a source of anxiety, offering, as it did, such possibilities of intestinal adhesions. At the suggestion of Dr. Kelly the stump of the right pedicle was disposed of by stitching the raw surface of the broad ligament at uterine cosine, to the raw surface at the infundibulo-pelvic ligament. A few stitches along the anterior face of the broad ligament brought the raw surfaces nicely in apposition.

Very thorough douching completed the opera-

tion. Water had been freely used during the operation to wash away puriform material, some of which had escaped from the cyst. A drainage-tube was introduced and the patient put to bed.

The operation lasted two hours, the longest operation in my experience. Almost the entire time was consumed in introducing the ligatures, as the other steps in the *technique* required but a few minutes.

The patient steadily improved and all septic symptoms quickly disappeared. The drainage-tube was removed after thirty hours and the sutures after six days. On the eleventh day, symptoms of inflammation about the right stump appeared, and continued until pus was discharged through the incision on the twenty-first day. The subsequent history of the patient has been one of rapid recuperation.

The case is reported because of its bearing on the questions of pelvic hæmostasis and the manner of disposing of extensive raw surfaces. It is also of interest as a further illustration of how, under the most desperate circumstances, patients will recover, to encourage the surgeon to extend to others, under similar circumstances, the resources of surgery.

HYPERTROPHY OF THE PHARYNGEAL TONSIL AS A CAUSE OF DEAFNESS, WITH THE REPORT OF A CASE.

BY LAURENCE TURNBULL, M.D., PH.G.,
AURAL SURGEON TO THE JEFFERSON MEDICAL COLLEGE HOSPITAL, PHILADELPHIA.

THE pharyngeal tonsil is a soft mass of lymphoid tissue, in health measuring not more than seven millimetres in thickness. It occupies the roof and the upper part of the posterior wall of the naso-pharynx, reaching from the posterior margin of the roof of the nasal cavities to the edge of the foramen magnum. Laterally it extends into Rosenmüller's fossæ, and to the Eustachian tubes. It is always present, varying in size in different individuals, and occurs in folds which are either longitudinal, or form a regular network; more rarely it is a cushion with small round elevations.

The pharyngeal tonsil is covered with ciliated epithelium, and is composed of acinous glands and numerous follicles of lymphoid tissue, but differs from the true adenoid vegetations in not being pedunculated or giving to the finger the sensation of a soft, cushion-like mass.

The normal secretion from the pharyngeal tonsil consists of an absolutely transparent, somewhat viscid mucus of the appearance and consistence of the white of an egg, which becomes changed in diseased conditions. At the present day Luschka's idea of a normal pharyngeal bursa is abandoned, and it is only the morbid hypertrophied condition which resembles a bursa.

The simple form of hypertrophy of the pharyngeal tonsil is distinguished by characteristic features perceptible both to sight and touch. Explored by the finger a smooth, elevated, rounded mass is felt in the vault of the pharynx, encroaching upon the Eustachian tubes and upon the choanæ, so that the upper boundary of the posterior nasal fossæ cannot be defined. The sensation is entirely different to the touch, as I have before stated, from that which is felt when post-nasal growths are encountered.

When viewed in the rhinoscopic mirror in the case of a girl of sixteen years, it appeared as a solid rounded mass encroaching upon the Eustachian tube of the left side and pressing upon the orifice.

To the otologist the chief interest of the pharyngeal tonsil when diseased lies in its interference with the Eustachian tubes, which may be compressed by the growth. The following illustrative case had also a chronic rhinitis, with some enlargement of the faucial tonsil of the same side.

There was marked deafness on both sides, the hearing distance of the right ear was $\frac{9}{XXII}$, and of the left, the side on which the Eustachian tube was encroached upon by the tumor, $\frac{5}{XXII}$.

The membrana tympani of the right ear was retracted and dull; the auditory meatus was inflamed and irritated by an old ulcer near the edge, and was reduced in size by an old cicatrix following a perforation.

The Eustachian tube on each side was almost impervious to inflation by Politzer's method. There was also an ulcer in the left nasal cavity.

The treatment consisted of a cleansing spray to the naso-pharynx, an ointment composed of ten parts of nitrate of mercury to twenty of oxide-of-zinc ointment to the ulcer in the nose, and iodine and iodide of potassium dissolved in glycerin, to the faucial tonsils. To the enlargement of the pharyngeal tonsil, repeated applications of styptics were made. This treatment was kept up for weeks, with only partial reduction of the tumor, so that avulsion of the mass had to be resorted to.

After a month's treatment, the ulcer in the nose healed, the rhinitis was cured, and the ulcer near the membrana tympani had closed. By careful inflation and the use of a twenty-per-cent. solution of menthol in cosmoline, applied to the membrana tympani, at first every day for a week, then every second day, the membrane cleared so much that a partial reflex was secured. After that, inflations with air medicated by ether kept the parts free. The hearing was improved to $\frac{18}{XXII}$, while by the removal of the tumor and subsequent treatment the hearing became normal. No evil consequences resulted from the operation and cicatrization followed, while all traces of the tumor disappeared in a month after the operation.

AMPUTATION AS AN ORTHOPÆDIC MEASURE.[1]

BY AP MORGAN VANCE, M.D.,
SURGEON TO THE LOUISVILLE CITY HOSPITAL, AND TO STS. MARY AND ELIZABETH HOSPITAL, LOUISVILLE, KY.

THE introduction of amputation as an orthopædic measure is out of the recognized lines of treatment, but as we are expected to relieve our patients of crippling and deformity, it is obvious that if amputation in some cases is the best, and often the only way this can be done, the operation may become orthopædic.

Even the most conservative among us occasionally meet cases in which the question at once arises, Would this patient be better off without this deformed foot or subluxated tibia? But, few of us have ever removed a useless limb in order to substitute a useful artificial one. In the past ten years I have had under my care a number of cases in which there was no doubt in my mind that amputation, performed only for convenience, was better than any other treatment. Possibly some will say, You should refer such cases to the general surgeon. But I think that the mechanical and special training of the orthopædist peculiarly fits him to deal with these patients. Who should be better able to determine the proper method to be used or the point of selection in given cases—the general surgeon or the orthopædist? The orthopædist, of course, for he should know all about the mechanism of the prothetic apparatus. The general surgeon learns how to do the operation by a given method, but rarely knows whether an artificial leg is made of cork, wood, or what not, or when doing an amputation, bears in mind the subsequent comfortable and useful adjustment of the prothetic apparatus. He rarely knows that it is absolutely necessary to have from four to six inches space above the ankle-joint for the attachment of an artificial foot, and consequently we often meet men struggling through life with stumps the result of amputation just above or through the joint. The same may be said of the knee. An amputation through this joint is an abomination to the artificial-leg maker and a never-ending trial to the patient.

At least three inches should be left for the proper adjustment of the apparatus. We daily meet cripples who would be rendered more comely, comfortable, and useful by means of an amputation and the fitting of an artificial limb. Particularly is this true of cases in which the knee can be saved, although the condition of some may be greatly improved by a thigh-amputation. Among those in which the knee can be saved will be found a few cases of old infantile paralysis (talipes), and adult cases of congenital talipes, in which painful bursæ have developed, and life rendered unendurable from the pain caused by walking.

On the other hand, old subluxated knees, with ankylosed patellæ, flail-joints and great shortening, are not uncommon. I have known several of these cases that were converted from hopeless cripples into useful members of society by a proper amputation and the adjustment of an artificial limb.

The orthopædist is very frequently called upon to improve the condition resulting from the recognized, though barbarous, amputations through the tarsus, the only remedy for which is an amputation above the ankle-joint and an artificial limb.

The reason for these suggestions will be very apparent after an inspection of a modern artificial limb.

I will briefly report a few cases illustrative of the good done by amputation performed orthopædically.

CASE I.—A. E., aged twenty-one years, single, called on me for advice in regard to an extreme deformity of the feet. He was very tall and thin, and gave me the following history: His family was phthisical. His feet were perfect up to eight years of age, when they gradually began to turn outward. He can give no explanation of this except that a tendency toward the position was produced by a pair of boots which were too short for him, and turned over at the heels, thus putting the structures on the inner side of the ankle-joint on a strain. There was neither paralysis, nor disease of the bones. Efforts had been made to arrest the progress of the deformity, but they were of no avail.[1]

The patient was six feet and four inches high, as he stood on the ends of the tibiæ, and I estimated that at least four inches were lost by the deformity. There was ugly ulceration of the parts which were pressed upon in walking. I advised for his relief a double amputation below the knees, and the application of two artificial limbs.

Both of the amputations were done at the same time, May 28, 1887, by the method of antero-posterior flaps with circular incision of the muscles. There was no mishap during his convalescence, and July 20th, just seven weeks after the amputations, he walked out of the manufacturer's shop on two Bligh legs, assisted with only a stick, the first patient in the experience of the maker who had ever done this, even when only one artificial limb was required. The patient has gradually improved in walking, and when I last saw him, a year ago, he told me he had walked four and a half miles in an hour and twenty minutes, on a country road.

The method by which this man walked on his deformed feet being similar to that employed while walking on artificial limbs enabled him to manage the latter with greater ease than is usual. In adjusting the artificial limbs his height was reduced to five feet eleven and one-half inches.

After his convalescence he became a theological

[1] Read before the American Orthopædic Association, Philadelphia, September, 1890.

[1] Casts of the feet were shown to the members of the Association.

student at Hanover, Indiana, and now has charge of a church in Southern California.

CASE II.—W. M., aged sixteen years, the subject of chronic hip-disease, with recent pathological dislocation.

After a subperiosteal excision of the upper end of the femur it was discovered that the whole of the femoral shaft was the subject of osteomyelitis. Amputation was done forty-eight hours subsequently by the following method: The bone having already been removed, subperiosteally, sufficiently far down to allow the application of the Esmarch bandage so that the tourniquet would come above the bone, the amputation was proceeded with by the mixed method—skin flaps antero-posteriorly, and circular incision of the muscles. No sawing of the bone was required, as the circular division of the muscles corresponded with the upper end of the bone so nearly that the limb slipped away without any difficulty. The boy gradually recovered, and reproduction of bone occurred in the stump, the whole of the periosteum being left in a tolerably fair condition.

This amputation, necessitated by force of circumstances, suggests this method as a practical one in all cases where disarticulation at the hip is necessary, as it permits the application of the Esmarch bandage and a bloodless operation. When the case was last examined two years and a half had passed since the amputation. Bone had been reproduced down to the end of the periosteum, and the joint was controlled by the muscles as if the original bone had never been removed. He uses an artificial limb, and I have seen him walk on rough roads with no more difficulty than is ordinarily exhibited by a patient when first trying to use an artificial limb.

CASE III.—Miss M. T., aged eighteen years, had an inflammation of the left knee at the age of three years. Upon examination there were found five inches of actual shortening, and great atrophy of the limb. The shortening was due to subluxation of the tibia and arrested development. She was unable to use the limb without the aid of a long splint extending to the hip and perineum, besides a five-inch patten. By the aid of these she could get about with great difficulty, and suffered from many painful exacerbations of the inflammation, due to falls.

Amputation above the knee was advised, and was performed, July 17, 1884. Within three months she had a Bligh leg adjusted, and since then she has been able to walk with comparative ease, and in comeliness and comfort is greatly improved.

CASE IV.—C. W., aged twenty-four years, single, gave the following history: When about six years of age he received a blow upon the right knee, which was followed by acute inflammation of the joint, the limb rapidly becoming flexed. Various surgeons treated him, and many attempts were made to straighten and keep straight the limb. In the course of time an abscess occurred, from which pieces of bone removed. For the last ten years or more he had walked by the aid of a crutch with a stirrup upon it.

On examining the patient I found his limb flexed to an angle of about ninety degrees, perfect bony ankylosis having taken place. It was much atrophied, although the muscles between the pelvis and thigh were well developed. The femur was bowed anteriorly from the weight thrown upon it while walking, the leg below acting as a lever.

The patient wanted his limb straightened, and after discussing the various procedures to bring about this result, we decided on the removal of a wedge-shaped piece of bone, including in the wedge the patella and part of the condyles of the femur and tibia—Buck's modification of Barton's operation.

On September 27, 1882, the operation was performed, the limb being straightened by force until the bony surfaces were in apposition. In order to accomplish this it was necessary to divide both hamstrings.

He took chloroform badly, which required the operation to be performed very rapidly, but no untoward symptoms followed after he was put to bed.

The patient was able to be about on crutches at the end of three weeks. In five weeks all dressings were removed, and the union was found to be bony. The external wound also had healed. There were two and three-fourths inches actual shortening.

This patient, in the eight years that have passed since the operation, has had no trouble, and walks well without a cane or crutch.

When this result was accomplished I felt that I had done a creditable piece of surgery; but in the light of subsequent experience I now feel that in consideration of the greater danger of excision, and of the stiff knee and high shoe, that I would have done this man a greater service by amputating above the knee. Other cases might be instanced, but these are sufficient to illustrate the fact that amputation is often an orthopædic measure.

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VERATRUM VIRIDE IN PNEUMONIA.

BY WILLIAM MARTIN, M.D.,
OF BRISTOL, PA.

IN the present age of scientific medicine the opinions of medical men differ as to the most rational and safe method of treatment of nearly all affections, and especially in the treatment of pneumonia do the views of physicians diverge widely.

In all the diseases which are acute in character and in which the crisis is reached in a few days, prompt medication is important, and without this promptness valuable lives may be lost. Some practitioners have no distinct plan of treatment in pneumonia, but rely on being able to combat symptoms as they arise; thus the disease often gets beyond control.

The principal difference of opinion in the treatment of pneumonia is with reference to venesection, and the use of the so-called arterial sedatives. The old method of treating acute inflammations of deep structures by venesection is revived, and has its

advocates, who announce great results and defy the profession to show equally good results by any other mode of treatment.

The majority, however, still practise the more recent method, that by the administration of remedies which have a sedative action on the circulatory system, of which the most valuable though not the most used is veratrum viride.

This drug is not used by many physicians because it has the reputation of being dangerous, and some who have used it may not have had good results simply because it was either not properly administered or because the tincture was not pure and of standard strength. When pure the tincture of veratrum is very efficient, and in the author's experience better results have been obtained by its administration than by any other plan of treatment. The best form to use in this disease is the pure tincture (Norwood's).

The dose should at first be small, gradually increasing until the physiological effects are produced, when, if the toxic symptoms are marked, it should be discontinued, and need not be renewed, except in rare cases. When the toxic point is reached such symptoms as depression, nausea, and, possibly, vomiting may develop, but these quickly disappear.

Professor Bartholow[1] writes: "Notwithstanding the very formidable symptoms produced by large doses, fatal results have been extremely rare."

The principal effects of veratrum are reduction of the force and number of the heart-beats and lowered arterial tension. The drug may be carefully pushed so that the pulsations are reduced to but little more than thirty per minute without bad effects if the patient remains in the recumbent position. If depression, vomiting, and other symptoms appear, stimulation and a little morphine will soon produce reaction.

The best time to administer veratrum in pneumonia is in the first stage, but it is also beneficial in the second stage, the stage in which cases are usually first seen. The influence of the drug is similar to that of venesection, but is more precise, as the pulse can be reduced at will and at the same time lessened in force, thus reducing the blood-supply of the lungs, preventing further consolidation, and hastening resolution. In cases with feeble constitutions, such as inebriates, in which depression would be harmful, the results are better if the drug is not given in amounts sufficient to cause its physiological effects, and in these cases it is usually necessary to give ammonium carbonate with the veratrum.

It is very easy to find the proper amount for each patient if the drug is first given in small doses and increased gradually, for the effects will always be manifest before a lethal dose is given.

[1] Materia Medica and Therapeutics.

In cases with high temperature, rapid pulse, and labored respiration, the effects are marvellous: the temperature falls usually to normal, sometimes to a degree below; the pulse is reduced, sometimes to one-fourth of the previous rate; and the respirations become deep and quiet; while the patient, if vomiting does not occur, quietly falls asleep and awakens refreshed and better—the crisis is over.

By this method of treatment cases seen early may be aborted, and convalescence may be hastened in those seen in the second stage. Such local measures as may be indicated, should, of course, be used in combination with this internal treatment.

In a number of cases treated in this manner by the author, the average duration of the disease was remarkably short, especially in view of the fact that four were cases of double pneumonia and that one was phthisical.

Summarizing, we find that:

1. The administration of veratrum viride is the preferable method of treating pneumonia, and that the drug is best given in the form of a tincture, (Norwood's).

2. If the dose is at first small and gradually increased it is a safe medicament.

3. It should be given early, and if possible, in the first stage, though it is also of use in the second stage.

4. If used in cases with broken-down constitutions, as in inebriates, it should be administered cautiously. In such cases there is immediate danger from the depression, and the toxic effects should not be produced.

CLINICAL MEMORANDA.

THERAPEUTICAL.

Aristol.—The efficacy of the dry treatment by means of absorbent powders has been so frequently and positively manifested in cases of superficial wounds and ulcerations, that any substance which combines the qualities of a rapid absorbent, of a mild stimulant, and of a powerful antiseptic, is most valuable to the surgeon.

Many drugs for which these qualities are claimed have been recommended, and of all iodoform has been most generally accepted by the profession. This substance has, however, certain positive disadvantages. Its odor is penetrating and lasting, and to many patients intolerable. If applied to large surfaces the danger of toxic symptoms developing from absorption has been proved by numberless recorded cases. Hence, substitutes for this material are constantly being brought forward. Hydronaphthol and iodol promised well, and yielded good results, but after a comparatively brief trial their use was discontinued.

The latest substitute for iodoform is aristol, a combination of thymol and iodine. Aristol is a fine, absorbing powder, without unpleasant odor, and it is said never

occasions toxic symptoms, nor causes undue irritation of a wound, being, moreover, a powerful antiseptic.

Bacteriological researches have not proved the antiseptic power of aristol. This, of course, does not conclusively settle the matter from a medical point of view, since iodoform is in the laboratory absolutely destitute of germicidal properties, though few doubt its efficacy in cases of suppurating wounds.

With a view to determining the applicability of aristol to the ordinary surgical affections encountered in dispensary practice, for it is here that the drug, if well approved, will mainly be of use, I directed one of my students, Mr. R. Pittfield, to record carefully the results of its employment as a dusting-powder in a comparatively large number of selected cases. It is difficult to tabulate accurately the results obtained in these cases, and no just judgment can be formed of the drug until its use is much more widespread than at present. In general terms it may be stated that the observed effects were very similar to those noted after the employment of iodoform. The wounds and open surfaces remained dry, granulations were slightly stimulated, and healing progressed favorably. Good effects were particularly marked in several cases of ulcerating gummata. In these there was pronounced improvement immediately upon substituting aristol for iodoform.

In but two cases was there any ill effect from the powder. In these granulations, which previously had been comparatively healthy, became highly inflamed and slightly sloughing, so that iodoform had to be used.

As a result of the application of aristol to a variety of cases it would seem that the drug may be fairly ranked with iodol, hydronaphthol, and iodoform in so far as its immediate effects are concerned, that it is particularly serviceable in cases of ulcerative syphilis, and that it possesses the advantage of being devoid of disagreeable odor. As to whether it can by decomposing in foul wounds render septic products innocuous is yet to be determined, and upon this point will depend either its universal use or its relegation to the obscure position occupied by so many drugs which have been advocated from time to time.

EDWARD MARTIN, M.D.,
Assistant Surgeon to the
Hospital of the University of Pennsylvania.

OBSTETRICAL.

Veratrum in Eclampsia.—The following case did not differ materially from the majority of cases of eclampsia, and it is chiefly to the treatment that I desire to call attention.

On May 22d, early in the morning, I was called to see Mary S., a robust negress about twenty years of age; primipara. She was unconscious, and both tonic and clonic convulsions were rapidly recurring. From her mother I learned that labor began on the previous evening, at which time the patient had a "fit," and that since then she had been unconscious. Several convulsions occurred during the night. As the least irritation would excite a convulsion, I gave half a grain of morphine hypodermically before making a vaginal examination. However, the morphine did not prevent a convulsion when I attempted to make the examination, so that I abandoned the idea of precipitating labor. The pulse was full and bounding, respiration labored and shallow, face and feet much swollen, and the kidneys not acting. Clonic convulsions became less frequent, but the condition of the respiration, skin, and pulse remained unchanged.

Although the symptoms indicated venesection, I was convinced that better results could be obtained from veratrum viride, of which I gave twelve minims of the tincture hypodermically, about two hours after the administration of the morphine. In a short time the pulse was reduced in frequency and became soft and compressible, the skin moist, and breathing less labored. I was told by the mother that the patient had answered twice when spoken to. The condition of the kidneys remained unchanged.

May 23. Condition was unchanged, except that a vaginal examination was made, which caused only twitchings of the muscles of theface and arms. Labor was advancing very slowly.

24th. The pulse increased in frequency and diminished in volume, and the skin became dry. I kept the patient quiet and gave morphine in small doses hypodermically. In the night the child was born. Hour-glass contraction followed, for which I gave chloroform, dilated the constriction, and removed the placenta. This operation caused convulsions.

The patient never regained consciousness, and died on the following afternoon. I was not present when she died, but from what the mother said I think that death occurred during a convulsion.

I am persuaded that veratrum is of greater utility than venesection, in cases where the symptoms seem to indicate the latter. Veratrum produces all the good effects of bleeding without the bad ones. It depresses, but does not exhaust the patient; it reduces the reflex excitability of the spinal cord, and it lessens very much, if it does not entirely check, the spasms. Pilocarpine should be used hypodermically, often enough to keep up free diaphoresis, and I believe that the fœtus should be removed as soon as it can be done without causing convulsions.

During the actual seizures, chloroform is our most potent remedy.

JOHN H. AYRES, M.D.
ACCOMACK C. H., VIRGINIA.

MEDICAL PROGRESS.

The Uses of Hydroxylamine.—ROSENTHAL (*Deutsche medicinische Wochenschrift*, No. 35, 1890) has thoroughly reviewed the recent work on the uses of hydroxylamine. Comparatively few practitioners have employed the drug in the treatment of disease, and its effects have been chiefly observed in the management of skin affections. Thus, Eichhoff has used the drug in some parasitic and bacillary diseases of the skin. He has treated five cases of lupus, five of herpes tonsurans, and one of sycosis with the following ointment:

℞.—Chlorohydrate of hydroxylamine . . . 1½ grains.
Alcohol, Glycerin } of each . . 12½ drachms.—M.

This mixture may be employed five times daily, but the parts treated must be previously washed with soap and water. Owing to the irritant and toxic properties of the drug, the solutions when first used must not be very

strong. A case of lupus of the upper lip and nose yielded to this treatment in eight days, and at the end of four weeks the ulcers were entirely cicatrized. In the cases of herpes tonsurans the application of the drug was followed by eczema of the scalp, but the final results were good and were rapidly attained. Eichhoff thinks that good results may also be attained in psoriasis, parasitic and seborrhœic eczema, and in the eruptions of syphilis, and that subcutaneous injections may be employed in the treatment of leprosy.

Fabry observed twenty-four cases of psoriasis treated with hydroxylamine, and found that the action of the drug resembled that of chrysarobin and pyrogallic acid, with the advantage that it did not stain the clothing. Care, however, must be exercised in the employment of the drug, owing to its poisonous properties. Thus, the application of hydroxylamine in one patient, a woman, was followed by very marked albuminuria, which ceased with the suspension of the treatment. Fabry has employed the medicament associated with calcium carbonate, as follows:

℞.—Chlorohydrate of hydroxylamine . . . 3 to 4 grains.
Alcohol . . . . 15 drachms.
Carbonate of calcium, a sufficient quantity to neutralize. —M.

℞.—Chlorohydrate of hydroxylamine. . . . 15 grains.
Water . . . . 2 pints.
Carbonate of calcium, a sufficient quantity to neutralize. —M.

Blaschko advises an ointment of lanolin containing one or two per cent. of hydroxylamine. Such a preparation causes no pain and is well borne. Eichhoff has more recently employed a three-per-cent. ointment with success in one case of psoriasis, one of seborrhœic eczema, one of herpes tonsurans, and four of sycosis. Kantorowicz has also obtained good results with the employment of Eichhoff's formula. A case of herpes tonsurans was completely cured in twenty-four days.

Groddeck has employed hydroxylamine in the treatment of twenty-five cases, with variable success. In solutions of a strength of 1 to 1000 the drug produced irritation, and in many cases it did no good. On the whole, he found hydroxylamine inferior to chrysarobin and pyrogallic acid, and, owing to its toxic properties, he thinks its use should not be extensive.—*La Médecine Moderne*, September 18, 1890.

The Treatment of Diphtheria by Inoculations of Erysipelas.—BABTSCHINSKI observed three severe cases of diphtheria which resulted in recovery after the spontaneous appearance of erysipelas. This led him to experiment with the treatment of diphtheria by inoculations with the cultures of the erysipelas microbes. Fourteen patients were treated by this method. The inoculations were made by means of scarification in the neighborhood of the submaxillary lymphatic glands. The symptoms of erysipelas showed themselves in from four to twelve hours, and as the erysipelas progressed the diphtheritic membrane gradually disappeared from the fauces, the lymphatic engorgement diminished, and the temperature fell. In two cases only was the treatment unsuccessful, and in these, death occurred before the erysipelas developed. No additional treatment was used, and other cases of diphtheria occurring in the families of those inoculated were, without exception, fatal.—*London Medical Recorder*, September, 1890.

Tetanoid Convulsions probably Due to Infection of the Umbilicus.—MR. T. R. RONALDSON (*Edinburgh Medical Journal*, October, 1890) reports an interesting case of tetanoid convulsions in an infant. When the infant was nine days old, winking of the left eye and twitching of the same side of the face appeared, and with these symptoms swelling of the tongue. The spasmodic symptoms increased, and on the third day of the attack Mr. Ronaldson was called to attend the child. At this time the infant's appearance was that of health, and the only symptoms were the convulsive attacks, which were confined to the left side, beginning as tonic and ending as clonic spasms. On examination, the stump of the cord was found still attached to the umbilicus, and, though dry, had a putrefactive odor. There were no signs of inflammation around it. The remains of the cord were removed by means of scissors, and the stump was washed with bichloride solution and dressed with zinc ointment. The attacks, however, continued in spite of the administration of potassium bromide, chloral, and chlorodyne, and the application of twenty-per-cent. solution of cocaine, and nitrate of silver. On the seventh day of the attack the seizures became general, and recurred 204 times in twenty-four hours. On the thirteenth day, although the stump was rapidly healing, the umbilicus was excised. The fits at once diminished in frequency. On the fourth day after operation there were no seizures, but on the following evening they returned. The silkworm-gut sutures were then removed, after which the attacks diminished in frequency, although they did not disappear. Eight days later, sulphocarbolate of sodium, four grains every two hours, was prescribed, with the result that the digestion was upset and the fits became more frequent. Reducing the dose of sulphocarbolate, the convulsions gradually became less frequent, and none occurred after the thirtieth day following the operation. The child has since then remained in good health.

The excised umbilicus was examined by Dr. Edington, but no microörganisms were found.

Powder for Migraine.—The following powder is recommended in *La Médecine Moderne* for the treatment of migraine:

℞.—Citrate of caffeine . . 1½ grain.
Phenacetin . . . 2 grains.
Sugar of milk . . . 4 " —M.

To be made into one powder. This dose may be repeated, if necessary, in the course of two hours.

Treatment of Gastric Ulcer.—In the *Revue Général de Clinique et de Thérapeutique*, the following summary of the treatment of gastric ulcer is given by ELOY. In cases where absolute intolerance of milk exists, predigested foods are to be employed, and the milk should be peptonized. Beyond the diet, four indications are to be combated—namely, gastralgia, flatulence, vomiting, and hæmorrhage from the stomach. For the pain in the belly it is recommended that the patient shall receive

an injection of morphine and a hot application or a mustard-plaster to the epigastrium; while if pain is due to the ingestion of food, we can resort to preventive measures only, which consist in the employment of liquid and unirritating foods, and the administration of five drops of the following mixture in a teaspoonful of water:

℞.—Hydrochlorate of morphine 2½ grains.
Cherry-laurel water . . ½ drachm.—M.

If constipation exists with the gastralgia, small doses of belladonna may be employed, or, as has been recommended by Bartholow, a powder consisting of 2 grains of subnitrate of bismuth and ¼ of a grain of sulphate of morphine, may be taken shortly before the meals. In some cases, however, small quantities of atropine may with advantage be substituted for the morphine. The following prescription may be found of service:

℞.—Atropine . . . . $\frac{1}{10}$ grain.
Subnitrate of bismuth . 1 drachm.—M.

Divide into ten powders, and take one at night and in the morning. If the vomiting is obstinate, small pieces of cracked ice may be held in the mouth and cold may be applied to the epigastric region by means of the ice-bag, while warmth is applied to the feet. Under these circumstances, too, subnitrate of bismuth is valuable. For the flatulence which is so commonly present in these cases, it is recommended that small amounts of calcined magnesia be ingested, or that a very small cup of coffee be taken three times a day. For hæmorrhage from the stomach the physician should administer ice, tannic acid, acetate of lead, and antipyrine. The acetate of lead, when prescribed, should be combined with morphine, but when tannin is used it is best associated with opium, as is shown in the following prescriptions:

℞.—Acetate of lead . . . 3 grains.
Hydrochlorate of morphine 1 grain.
Powdered white sugar . 1 drachm.—M.

Make into ten powders, and give two to five a day, or one every hour.

℞.—Opium and tannin, of each 10 grains.
Pure opium . . . 3 "
Powdered sugar . . . 1½ drachms.—M.

This is to be divided into ten powders, and one powder is to be taken every one or two hours, or oftener, if necessary.

Antipyrine is often employed in hæmatemesis, because of the hæmostatic effect which has been noticed by Henocque, Huchard, and Arduin. It may be administered in powders of ten grains, one every hour for five hours, associated with cocaine. It is sometimes of great service when used as follows:

℞.—Hydrochlorate of cocaine 1½ grains.
Antipyrine . . . . 45 grains.—M.

Divide into five powders, and follow the administration of each by a tablespoonful of rum, as the alcohol favors the action of the antipyrine.

Tellurate of Potassium in Night-sweats.—According to *La Médecine Moderne*, October 21, 1890, tellurate of potassium has been found by NEUSSER to be valuable in the suppression and diminution of night-sweats. He employs one-third of a grain, in pill-form.

After the patients have taken this dose for a short time, it may be doubled without unfavorable results and with a good effect in reducing the quantity of sweat, provided the first dose has not been sufficient to control it. In rare cases the drug may produce dyspeptic symptoms. As a general rule, however, it has a favorable effect.

Local Anæsthesia for Slight Operations.—For operations upon small abscesses, opening fistulous tracts, or removing superficial growths, it is recommended that local anæsthesia be secured by atomization of the following solution:

℞.—Chloroform . . . 10 parts.
Sulphuric ether . . . 15 "
Menthol . . . . 1 part.—M.

The anæsthesia which is thus obtained lasts from two to ten minutes.

Mixture for the Treatment of Smallpox.—According to *La Semaine Médicale*, the following is a useful mixture for the treatment of variola:

℞.—Sublimed and washed sulphur . 2½ drachms.
Glycerin } of each 6 "
Water of orange flowers }
Simple syrup . . . . 5 "

Mix, and give a coffeespoonful to children, or a tablespoonful to an adult, every two or three hours.

The Action of Hypnal.—This drug, which is variously known as monochloralantipyrin or monotrichloracetyl dimethylphenylpyrazalon, has been recently introduced by certain European physicians as a valuable hypnotic and analgesic.

In the *Bulletin Gènerale de Thèrapeutique*, September 30, 1890, FRÄNKEL has presented an exhaustive study, not only of the chemical constitution of hypnal, but also of its physiological action and the best modes for its administration. The conclusions reached by Dr. Fränkel are that the drug is useful in the insomnia produced by excessive pain, and not only in the sleeplessness which results from cough arising from bronchitis, but also in that due to tubercular disease, and in neuralgic insomnia. It possesses all the properties of both chloral and antipyrin, or, in other words, both relieves pain and produces sleep. The very nature of the compound almost of necessity makes it a useful remedy, since, as is known to most of the profession, chloral in ordinary doses has little effect upon pain, and antipyrin, while relieving pain, rarely produces sleep.

Hypnal being quite insoluble in cold water, the best way to administer it is in some mucilaginous mixture which will hold it in suspension, such as syrup of acacia: the following formula is given by BARDET for its administration:

℞.—Hypnal . . . . 30 grains.
Syrup of acacia . . . 1 fluidounce.—M.

Dose: A dessertspoonful.

Or a very excellent formula is as follows:

℞.—Hypnal . . . . 15 grains.
Chartreuse . . . . 1 drachm.
Water . . . . ½ ounce.—M.

The entire amount to be taken in one dose, or to be divided into several doses when given to children.

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SATURDAY, NOVEMBER 1, 1890.

AN UNJUST PROSECUTION.

THE readers of the daily papers in and about Philadelphia who are at all interested in medicine or pharmacy noticed several weeks ago that two of the leading druggists of Atlantic City had been arrested and charged with the misdemeanor of selling adulterated drugs.

A complete explanation of the arrest lies in the fact that the State of New Jersey some time ago adopted the United States Pharmacopœia as its standard of drugs. This action is laudable so far as it goes, and we think it would be fortunate if the remaining States of the Union would stamp officially the product of the Committee of the Revision of the Pharmacopœia with their approval. That an act done with the best intentions may, however, result in legal absurdities, is represented by the case before us. The druggists, who were fined fifty dollars each, were in the habit of preparing their tincture of nux vomica from the so-called normal liquid of Parke, Davis & Co., which is an assayed fluid, the strength of which is governed not by the quantity of solid extract, as is directed in the U. S. Pharmacopœia, but by the amount of active principle or alkaloid which the drug contains.

The Dairy Commissioner of New Jersey having obtained samples of nux vomica, had it analyzed according to the directions given in the last Pharmacopœia, with the natural result that the extract was not present in proper quantity, and upon the chemist's testimony the Justice before whom the druggists were taken at once administered punishment. That this punishment was unjust is, of course, at once evident to anyone who is familiar with the subject, and we would call attention to the fact that the authorities of the State of New Jersey could practically prosecute almost every druggist in that commonwealth for some similar breach of the letter of the law.

The advances which medicine and pharmacy have made in the last ten years practically prohibit the use of many impure substances, which owing to our lack of knowledge in 1880 seemed as pure as possible. Chief among these may be named saccharated pepsin, which everyone now knows is practically useless as compared to the pure pepsins which are manufactured by the leading firms in this country.

The ludicrous condition of affairs exists that for once honesty was not the best policy; for if the druggists who suffered had dispensed the officinal tincture of nux vomica the patients receiving the medicine would have received a more impure preparation than if the law had not been obeyed.

We earnestly hope that Governor Abbett will use his influence to have the present law either repealed or so amended that similar travesties on justice may not recur.

DR. BARTHOLOW'S RETIREMENT.

IN another column will be found the news of the retirement of Dr. Roberts Bartholow from the Chair of Therapeutics and Materia Medica in the Jefferson Medical College, and those who are interested in Philadelphia as a medical centre and in medical education throughout the country will hear with regret of the withdrawal of this eminent and brilliant teacher from the corps of active professors in this well-known school. Dr. Bartholow has always been one of the foremost in teaching the best and most advanced yet conservative employment of remedies for the cure of disease, and his precepts as enunciated in his works and lectures, have no doubt given encouragement and success to a large body of the profession, particularly in its younger element.

Dr. Bartholow having left a most lucrative practice in Cincinnati, was able to obtain in Philadel-

phia a foothold immediately upon his arrival, which his sterling worth strengthened from year to year, until its dimensions increased so greatly that he was forced to limit himself to consultations. We are assured that no one appreciates Dr. Bartholow's worth more than the trustees of the Jefferson College, and that his retirement was only decided upon after the most careful consideration.

A NEW JOURNAL OF NERVOUS DISEASE.

WE welcome to our exchange list *The Review of Insanity and Nervous Disease*, which is a quarterly compendium of the current literature of neurology and psychiatry, edited by Dr. James H. McBride, of Milwaukee, Wisconsin, who has associated with him as collaborators Dr. Gray, of New York, Dr. Mills, of Philadelphia, Dr. Riggs, of St. Paul, Dr. Jones, of Minneapolis, and Dr. Bannister, of Kankakee.

After a careful examination of the pages of the first number we are forced to conclude that this is a publication which by reason of its able selection of abstracts is one to which every one who is interested in nervous diseases must subscribe, while the contents of this number are so uniformly good that the following issues will probably be equally worthy of praise.

SOCIETY PROCEEDINGS.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

Sixteenth Annual Meeting,
held in Louisville, Kentucky, October 8, 9, and 10, 1890.

FIRST DAY.—MORNING SESSION.

The Association met in Liederkranz Hall, and was called to order by the President, Dr. J. M. Mathews, of Louisville, at 10 A.M.

DR. FRANK WOODBURY, of Philadelphia, read the first paper, which was entitled

INFECTIOUS DYSPEPSIA AND ITS RATIONAL TREATMENT BY THE ANTISEPTIC METHOD.

Dr. Woodbury said that in the present unsettled condition of medical nomenclature dyspepsia is as much entitled to recognition as a distinct disease as is consumption or chorea. Like the latter diseases, it is characterized by manifestations of nervous disorder, so that Cullen was not entirely wrong in considering dyspepsia as a neurosis belonging to the class of adynamiæ. Like pulmonary phthisis, its most marked symptoms are produced, the author believes, by the absorption of the products of parasitic microörganisms.

Abelous, a recent investigator of this subject, found sixteen species of microörganisms normally existing in his own stomach, of which two species were micrococci, thirteen bacilli, and one was a vibrio.

Habitually laborious, painful, and imperfect digestion, when not symptomatic of other disease, constitutes dyspepsia; and when accompanied by fermentation of the contents of the stomach and general toxic symptoms, the result of microbian development, it may properly be called infectious dyspepsia.

The disorder is sufficiently prevalent and gives rise to enough discomfort and actual suffering not only to deserve our serious consideration, but also to enlist our best therapeutic skill. The excessive growth of microorganisms during digestion is favored by slow movements of the stomach and by a deficient quantity or defective quality of the gastric juice. Acid dyspepsia, or sour stomach, may, rarely, be due to excessive secretion of hydrochloric acid, but is generally caused by lactic, acetic, or butyric fermentation, produced by the bacteria in the stomach. The object of treatment in infectious dyspepsia should be to prevent the excessive development of microörganisms during the digestion of food. This is attempted (1) by the use of articles of diet which are not in a fermenting condition nor readily fermentable; (2) by adopting such hygienic and tonic measures as will invigorate the bodily powers, bring the gastric juice up to its normal standard of quality and quantity, and increase the muscular power of the stomach; and (3) by local antiseptic treatment, including the administration of drugs which retard fermentation, and especially by lavage or irrigation of the stomach with weak disinfecting solutions, or simply recently boiled water.

DR. JOHN H. HOLLISTER, of Chicago, then read a paper on

HELP AND HINDRANCE TO MEDICAL PROGRESS,

and was followed by DR. I. N. LOVE, of St. Louis, who, in a paper upon

COFFEE,

said that after an experience of five or six years he favored taking a cup of strong, black coffee, without cream or sugar, preceded and followed by a glass of hot water, every morning before rising, or at least one hour before breakfast. The various secretions are stimulated, the nerve-force is aroused, and the day's labor is easier, no matter how the duties of the preceding day and night may have drawn upon the system. Another cup at four in the afternoon is sufficient to sustain the energies for many hours. In this way the full effect is secured. The ideal food for brain-workers is hot milk, and if this regimen be followed and accompanied with at least eight hours of sleep in every twenty-four hours, the capacity for work is almost unlimited.

DR. GEORGE HULBERT, of St. Louis, Missouri, read an interesting paper on

MECHANICAL OBSTRUCTION IN DISEASES OF THE UTERUS,

and submitted the following conclusions:

1. Normally we find the uterus in form and structure endowed with a capacity for menstruation far in excess of the demand.

2. In the pathological conditions considered as essen-

tial for mechanical obstruction we find that the conservation of force regulates the conditions so effectually that the capacity for menstruation is not abolished, and that the function is accomplished, unless there is *atresia*.

3. The phenomena believed to be dependent upon mechanical obstruction are not due to the forcible expulsion of retained fluids through the uterine canal, but are produced within the tissues, and are due to a disturbed rhythm of physiological forces caused by abnormal inervation, muscular action, and circulation.

4. The correct and rational interpretation of the testimony offered by symptomatology, pathology, and therapeutics removes mechanical obstruction from the domain of gynecology as a demonstrable fact, save in *atresia uteri*.

AFTERNOON SESSION.

The Association was called to order at 3 P.M. by First Vice-President Dr. C. R. Earley, of Ridgway, Pa.

DR. R. STANSBURY SUTTON, of Pittsburg, Pa., made (by invitation) some remarks on

THE SURGICAL TREATMENT OF UTERINE FIBROIDS,

and exhibited specimens.

DR. WILLIAM PORTER, of St. Louis, Mo., contributed a paper on

THE SELF-LIMITATION OF PHTHISIS,

in which he said that some time before his death Professor Flint promulgated the doctrine of the self-limitation of phthisis, and that this very interesting proposition was at one time freely discussed in various medical societies.

Dr. Porter said that after having carefully examined the facts cited in support of the proposition, he had no hesitation in asserting that there is not sufficient evidence to warrant us to accept the statement that phthisis is self-limiting, or that the element of self-limitation has a decided influence upon the result in any given case. He did not mean that all cases of phthisis necessarily die from the disease, but that when phthisis is firmly established there is nothing in the nature of the disease itself that indicates in any stage a fixed boundary—a line of demarcation as it were—but rather that all of its tendencies are progressive and downward.

DR. A. B. THRASHER, of Cincinnati, Ohio, then read a paper on

COUGH, ITS RELATION TO INTRA-NASAL DISEASE.

Cough, he said, is a reflex phenomenon due to the irritation of nerve-fibres in the bronchi, larynx, pharynx, nose, ear, stomach, etc.

A "normal" cough is for the purpose of freeing the air-tract from some foreign body. Irritation of the upper part of the trachea and of the ventricles of Morgagni most frequently produces cough, but irritation in many other locations may be referred by the sensory centres to this region, and thus give rise to cough. Inflammation of the cavernous bodies of the nose or of the septum has been known to cause a distressing cough that was mistaken for a symptom of tubercular disease. This is more apt to occur in persons of a neurotic temperament. The cough due to nasal disease may sometimes be recognized by its metallic ring and the absence of expectoration, and, as a rule, it can be provoked by touching the irritable spot in the nose with a probe. Dr. Thrasher cited the three following cases illustrative of nasal cough:

Case I.—In this case there were no subjective symptoms of nasal disease. The cough had been present for three months and was not benefited by the usual cough-mixtures. The lower turbinated body was hypertrophied, and touching it with a probe provoked violent coughing. The cautery was applied, and in three days the patient was well.

Case II.—A young woman who had been coughing violently for three months. She referred the irritation to the throat, which had been pencilled and sprayed for some time, with no relief. Touching the posterior extremities of either lower turbinated body produced violent cough. Treatment was adopted as in Case I., with good results in two months.

Case III.—Cough had been present for six months and was not benefited by constitutional or local treatment. The seat of the trouble was found to be in the left middle and right lower turbinated body. Treatment similar to that of the other cases was followed by cessation of cough within a month.

A paper entitled

THE THERAPEUTIC USES OF CARDIAC SEDATIVES IN INFLAMMATION,

by DR. H. A. HARE, of Philadelphia, was read by title in the absence of the author.

EVENING SESSION.

DR. JOHN A. WYETH, of New York, delivered the public address, taking for his subject

THE MEDICAL STUDENT.

Dr. Wyeth said that the first or preliminary stage of a medical student's education is his academic life, the second his medical college life, and the third his post-graduate or practical life, which extends from the day he leaves his alma mater until his usefulness ceases. Practical training may be acquired in three ways, as follows:

1. Service as interne, preferably for a term of two years, in a general hospital.

2. Service in some post-graduate college where all departments of practical medicine are taught by instructors especially trained in their respective branches.

3. Service as an assistant to one or more well-qualified practitioners in general medicine.

SECOND DAY.—MORNING SESSION.

DR. H. C. DALTON, of St. Louis, reported six cases of

PENETRATING STAB-WOUNDS OF THE ABDOMEN,

in which abdominal section was performed.

Case I.—A negro, aged sixteen years, admitted to the City Hospital, St. Louis, July 23, 1890. Patient had been stabbed two hours previously with a long-bladed knife. The wound was at the free extremity of the twelfth rib. Several inches of omentum protruded, but the general condition of the patient was excellent; pulse 62, respiration 23, temperature 100°. An incision was made in the left linea semilunaris. Blood and fæcal matter were found in the peritoneal cavity; there were two holes in the descending colon and one in the ileum, which were closed with continued iron-dyed silk sutures.

Discharged from the hospital, cured eleven days after admission.

Case II.—A man, aged twenty-one years, admitted August 21, 1890. He had received three stab-wounds an hour and a half before admission, one of which was an inch below the costal border and four inches to the left of the median line, and through this wound three inches of omentum protruded. The second wound was an inch above and two inches to the right of the umbilicus; and the third was in the seventh intercostal space in the right axillary line. A wound of the jejunum was closed by interrupted silk sutures. Four inches of the seventh rib were resected, the diaphragm was split for three inches, and a wound in the liver was closed by one catgut suture. The diaphragmatic and cutaneous wounds were closed by continuous catgut sutures. Patient's temperature arose to 102° on the second day, after which he rapidly recovered.

Dr. Dalton laid particular stress upon the importance of carefully inspecting such wounds to the bottom, and severely condemned the method of trusting to the introduction of the finger.

He did not think that implicit confidence should be placed in Senn's hydrogen-gas test.

DR. M. T. SCOTT, of Lexington, Kentucky, reported a case of

GUNSHOT WOUND OF THE INTESTINE,

in which four perforations were made by a large bullet. Complete recovery followed abdominal section.

DR. J. B. MURDOCH, of Pittsburg, Pa., contributed a paper on

TORSION OF ARTERIES AS A MEANS OF ARRESTING HÆMORRHAGE.

There are two methods, he said, by which torsion may be applied: (1) limited torsion, and (2) free torsion. In the first method, two pairs of forceps are required. One pair grasps the vessel at its cut extremity, and pulls it from the sheath. The artery is then seized by the second pair of forceps at a point from one-half an inch to an inch above the cut extremity, the second forceps being held at right angles to the long axis of the vessel. The first pair is then given three or four sharp turns.

By the second method only one pair of forceps is required. It is the method recommended by Bryant as not being likely to injure the external coat of the artery.

The following is a table showing the number of arteries, divided in cases of amputation, in which torsion by the second method was resorted to at the Western Pennsylvania Hospital for the arrest of hæmorrhage:

Femoral	116 times.
Popliteal	18 "
Axillary	18 "
Anterior tibial	317 "
Brachial	81 "
Radial	45 "
Ulnar	45 "

Dr. Murdoch said, in conclusion, that the advantages of torsion as compared with ligation are: (1) The greater facility with which it can be applied. (2) Torsion is a safer method, being less liable to be followed by secondary hæmorrhage. (3) Healing is facilitated, because the wound is free from any irritating or foreign body.

DR. G. FRANK LYDSTON, of Chicago, then exhibited the skulls of a number of the most notorious criminals of the world, and made some very instructive remarks with reference to their peculiarities, shape, size, etc.

AFTERNOON SESSION.

DR. W. P. KING, of Kansas City, Mo., contributed a paper entitled

WIRING THE SEPARATED SYMPHYSIS PUBIS, SUPPLEMENTED BY A PELVIC CLAMP,

which will appear in full in THE MEDICAL NEWS.

DR. C. H. HUGHES, of St. Louis, Mo., read a very elaborate and profound paper, entitled

PSYCHOPATHIC SEQUENCES OF HEREDITARY ALCOHOLIC ENTAILMENT,

which was followed by a paper on

UREA AND SEROUS MEMBRANES,

by DR. C. S. BOND, of Richmond, Indiana.

DR. ARCHIBALD DIXON, of Henderson, Ky., in a paper on

INGUINAL COLOTOMY,

said that the subject of colotomy, always one of interest, has, during the past decade, received much attention from the surgical world. As a measure to ward off imminent death, colotomy is demanded in all cases of obstruction in the colon, from whatever cause. For imperforate anus the operation holds a special position. It is intended to prevent impending death, but it may also be regarded as a cure for the disease. In many cases it is the first step in the process of cure. In a few words, it may be said that the indications to operate in any given disease depend, in the first place, on the chance which the patient has of getting well without operation; and, in the second place, upon the degree of probability that success will follow the operation. In cases of acute obstruction of the sigmoid flexure, or other part of the bowel, there is practically but one termination—death. No case of volvulus, whether of the large or small intestine, has as yet been known to recover under purely medicinal treatment. Here, then, the indication is as clear as the indication in hæmorrhage from the carotid —operation.

DR. EMORY LANPHEAR, of Kansas City, Mo., read a paper on

HYPNOTISM IN ITS RELATION TO SURGERY.

He reported a case of double talipes in which the subject had chronic Bright's disease which contraindicated the use of ether, and also had valvular disease, which prevented the safe use of chloroform. Dr. Lanphear hypnotized the patient, and operated at the first *séance*, contrary to the generally accepted idea that at the first *séance* a sufficient degree of anæsthesia cannot be produced.

Another case (reported by the permission of Dr. Shaw, of St. Louis) was that of a patient suffering from Jacksonian epilepsy due to a brain-tumor. He was hypnotized and trephined, the dura was opened, and a tumor weigh-

ing one and one-half ounces removed. The bone was replaced and the operation, lasting an hour, was completed.

DR. HAROLD N. MOYER, of Chicago, then read a paper on

THE HYPODERMIC USE OF ARSENIC.

He said that the hypodermic use of Fowler's solution has been recommended by various writers, among others, Hammond, who claimed that the dose which can be administered in this way is much greater than that which can safely be given by the mouth. Hammond has given as much as fifty drops of Fowler's solution as an initial dose. Again, he has often given the drug by the mouth until the eyes were puffed and vomiting was almost incessant, and then continued the arsenic in larger doses by hypodermic injection, with cessation of all gastric symptoms and the cure of the disorder.

In the case of a girl fourteen years old, suffering from chorea, the patient was placed upon the hypodermic use of arsenious acid, beginning with 3 minims of a five-per-cent. solution, and increasing every second day until three weeks after beginning the treatment, when she was receiving 13 minims at each injection, equivalent to about 36 minims of Fowler's solution. At the ninth injection she was discharged cured.

In the case of a woman who presented herself at the clinic in Rush Medical College with an enormous lymphadenoma of the side of the neck, after a few deep injections into the glandular mass the tumor began to diminish rapidly. When it had decreased one-half, the patient ceased attending and further observations could not be made.

Dr. Moyer's observations are in accord with those of numerous writers who have reported good results from the use of Fowler's solution in various forms of glandular enlargement, such as lymphoma, lymphadenoma, and Hodgkin's disease.

THIRD DAY.—MORNING SESSION.

DR. H. O. WALKER, of Detroit, read a paper on

PERINEAL CYSTOTOMY VERSUS SUPRAPUBIC CYSTOTOMY.

He said that in choosing an operation we should be governed (1) by its safety, (2) by its simplicity, and (3) by its applicability to the majority of cases.

For the removal of stone, litholapaxy undoubtedly stands preëminent, and can be done upon many patients past the age of three years, yet there are numerous restrictions to this method, such as stricture of the urethra, the large size of the stone, an enormous prostate, etc. There can be no question that when cutting has to be done the médio-bilateral method presents many advantages.

In looking up the literature of suprapubic operations since 1883, Dr. Walker found in the records of between three and four hundred operations, an average mortality of 30 per cent. A few operators have had a series of cases ranging from three to ten without a death. The most remarkable record in this respect is that of Dr. Hunter McGuire—twenty-one operations with but a single death. By the perineal method we find a mortality of from 5 to 9 per cent., rarely greater.

DR. EDWIN WALKER, of Evansville, Indiana, then reported

TWO CASES OF TUBAL PREGNANCY.

The first patient was twenty-seven years old, married for four years, and sterile. She had a history of uterine and tubal trouble before marriage. The menses were always irregular and were often missed for a month or two. She menstruated on June 29, 1890, but not in July. A few days after the missed period she began to suffer from severe pain in the right groin. On August 1st a sanguinous flow began, and an examination under ether revealed a soft tumor the size of a fist to the right of and behind the uterus. On August 17th the abdomen was opened, and the right tube, which was very large, was found ruptured. There was a large amount of clotted blood in the pelvis. The abdomen was irrigated with hot water and a glass drainage-tube used. The fœtus was not found. The operation was followed by some vomiting and pain, but recovery ensued without other bad symptoms. Drainage-tube removed on the third and sutures on the twelfth day. The highest temperature was 101.1°.

The author thinks that the present status of the question of operating is, that with such symptoms as were present in this case, abdominal section is the safest procedure to adopt.

DR. WILLIAM T. BELFIELD, of Chicago, in a paper entitled

A RÉSUMÉ OF EXPERIENCE IN THE VARIOUS OPERATIONS FOR CYSTITIS FROM PROSTATIC HYPERTROPHY,

reported 133 cases of operations upon the hypertrophied prostate, including eight of his own, as follows: Forty-one by perineal excision, mortality 9 per cent.; eighty-eight by suprapubic cystotomy, mortality 16 per cent.; four by combined perineal and suprapubic incision, none of which were fatal.

In fifty-six of these cases the patients had cystitis and had been dependent upon the catheter for periods varying from one to ten years. In all the cystitis was cured; in thirty-eight cases (two-thirds) the power of voluntary urination was restored and continued during the time of observation; in eighteen cases this function did not return.

Fifteen of the fifty-six cases were complicated with stone; excluding these, since it might be objected that the cure resulted from the extraction of the calculus rather than from the prostatic operation, there remain forty-one cases of uncomplicated prostatic operation. Of these, thirty-two (four-fifths) recovered the power of urination, and in nine this ability was not recovered.

DR. S. NORMAN, of Evansville, Ind., contributed a paper entitled

THE TREATMENT OF ORGANIC STRICTURE OF THE MALE URETHRA,

in which he said that in the practice of urethral surgery the operator cannot be too strongly impressed with the fact of the exquisite tenderness and sensitiveness of the urethra, and that the employment of the slightest amount of force in the introduction of an instrument should be regarded as a relic of barbaric surgery. When commencing the treatment by gradual dilatation, in sen-

sitive patients, Dr. Norman always produces local anæsthesia by the injection of from twenty to thirty minims of a four-per-cent. solution of hydrochlorate of cocaine.

Relative to internal urethrotomy, he believes that if it is properly and thoroughly executed and if special care is exercised to maintain the patency of the canal until the wound is healed, recontraction is of rare occurrence. Authority is divided in regard to the propriety of performing internal urethrotomy in the bulbous or in the membranous urethra. Judging from the results obtained by Harrison, the combination of external and internal urethrotomy offers encouragement for the permanent cure of stricture. Dr. Norman has performed external urethrotomy without a guide only three times, but the results as regards the absence of recontraction were entirely satisfactory. External urethrotomy with a guide is a simple operation, can be performed with facility and rapidity, and promises more satisfactory ultimate results than internal urethrotomy performed in the deep urethra.

DR. L. S. MCMURTRY, of Louisville, then made some impromptu remarks on

THE APPLICATION OF ANTISEPTIC METHODS IN MIDWIFERY PRACTICE.

He said that many medical practitioners can remember the time when the wards of certain hospitals were closed and undergoing renovation because puerperal fever had become epidemic, whereas a hospital to-day is the safest place in which a woman can be confined. A few years ago we were taught by Fordyce Barker that puerperal fever was an entity, a distinct fever, dependent upon a specific *materies morbi*. To-day we know that puerperal fever, so-called, is a septic peritonitis. A woman after labor is a wounded woman. She has undergone certain physiological processes, and has received injuries in the process of labor which open the lymph-channels by which she may be infected from without. There is no such thing as a woman having peritonitis without external infection.

To prevent this infection the vagina must be sterilized, the bed, the examining finger, and the nurse must be surgically clean, and the atmosphere as approximately aseptic as it is possible to make it.

The following papers were also read: The Advantages of Attending Medical Societies and of Reading Medical Journals, by Dr. T. B. Greenley, of West Point, Ky.; Internal Urethrotomy, with cases, by Dr. J. V. Prewitt, of West Point, Ky.; Was It Relapsing Fever? by Dr. A. D. Barr, of Calamine Springs, Ark.; Some Remarks on the Prevention of Myopia, by Dr. Francis Dowling, of Cincinnati, Ohio.

OFFICERS FOR 1891.

President.—Dr. C. H. Hughes, of St. Louis.

First Vice-President.—Dr. John H. Hollister, of Chicago.

Second Vice-President.—Dr. S. S. Thorn, of Toledo.

Secretary.—Dr. E. S. McKee, of Cincinnati.

Place of meeting, St. Louis, Missouri, on the third Wednesday in October, 1891.

NEW YORK ACADEMY OF MEDICINE.

HYDROPHOBIA:

Abstract of a Discussion by the Neurological Section of the New York Academy of Medicine, October 16, 1890.

The President of the Section, DR. LANDON CARTER GRAY, in discussing the clinical aspects of hydrophobia, said that the extreme variability in the period of incubation has given ground for the belief held by many competent observers that if such a disease as hydrophobia really exists, death may also occur as the result of fear, with symptoms closely resembling the true disease. The speaker thought himself justified in assuming that frequent mistakes are made in the diagnosis of rabies, the so-called dumb rabies being merely a symptom of purulent meningitis and meningo-encephalitis, and that very few cases of either rabies or hydrophobia—the latter term being used to signify the disease in man—have been observed in New York City or in this country. He believes that there is a disease running a fatal course in the dog and other lower animals, and that it is capable of being communicated to the human being and causing death, though the evidence of this rests mainly upon pathological and experimental findings.

DR. C. L. DANA said that there is no constant change to be found in this disease. The nerve-centres, which are the parts chiefly involved, are congested, and occasionally show hæmorrhagic and softened spots with subsequent evidences of increased vascular activity, exudation of leucocytes into the perivascular spaces, and, possibly, the beginning of a multiple focal myelo-encephalitis or of a focal necrosis. The symptoms are evidently not the result of organic changes in the nerve-tissues, but of a distinct poison—undoubtedly the product of microbic activity. In the light of Pasteur's scientific work this question of specific origin should be considered as proven. The speaker did not believe that there are authentic clinical records of a single case in which fear caused a disease similar to hydrophobia, or that there is a case of death from this hypothetical phantasm, although, possibly, tetanus or acute mania has followed bites in those predisposed by fright. He thought that Pasteur has demonstrated the fact that as a reliable prophylactic measure antirabic inoculations can be successfully employed.

DR. H. M. BIGGS then gave an elaborate description of the respective methods of inoculation and of the various emulsions used in the work both of Pasteur and Ferran.

DR. H. C. ERNST, of Boston, said that he regarded the results of Pasteur as among the greatest achievements of modern medicine. The speaker was converted to a complete acceptance of the theory after conducting a series of inoculation experiments. Nothing in medicine, he said, is more certain than the results obtained by inoculating healthy rabbits under the dura with emulsions of the spinal cord of hydrophobic rabbits.

As to the existence of a lesion pathognomonic of rabies, he did not think that this could at present be defined with scientific accuracy, but careful observations have demonstrated the almost uniform presence of a white-cell infiltrate in the walls of the minute blood-

vessels in the medulla, engorgement of the veins, and occasionally peri-vascular hæmorrhages. What apparently are small miliary abscesses are also present. The condition has been aptly described by the term *miliary bulbitis*.

The speaker then gave the clinical histories of three cases of true rabies in man which had come under his personal observation, and which, taken with the fact that a large number of dogs were affected at or about the same period, pointed to the recent existence of an epidemic of rabies in Boston. One of the cases, cited in detail, was of special interest, because the patient between the paroxysms was able to describe his condition, and had been especially questioned as to whether he had any repugnance to water. This patient positively stated that he had no repugnance, but that any thought of deglutition caused an uncontrollable spasm of the muscles of the throat. The patient also said that he was perfectly conscious of his acts during the violent paroxysms, but utterly unable to control himself. Even while thus quietly describing his sensations a fit would come on, and the next moment he would be on the floor struggling with four or five men.

As to the value of preventive treatment, the speaker instanced the case of a boy who was bitten in August last by a dog which within fifteen minutes had also bitten several dogs, of which two died from rabies. The father of the boy becoming alarmed consulted the speaker. Inoculation was advised and submitted to twice a day, and no bad symptoms resulted. Before the boy's return home a third dog had succumbed to unquestionable rabies.

Whether there is anything in Pasteur's claims or not, one thing is certain: he has obtained a specific virus which can be transferred from one animal to another indefinitely, and always produces a sequence of practically identical symptoms. The experiments made by Dr. Spitzka were not carried far enough, although he produced in rabbits something similar to rabies.

While hardly wishing to be considered a champion of the Pasteur method if the statistics of the Institute were not reliable, Dr. Ernst said that he was still bound to believe in Pasteur's honesty of purpose. It is a significant fact that after the elimination of all cases in which an element of uncertainty exists, the mortality-rate for those treated by inoculation is only ninety-eight one-hundredths of one per cent. He expressed surprise at the statement that there could be no such condition as pseudo-hydrophobia or lyssophobia.

DR. R. W. BIRDSALL said that he had seen a number of cases of pseudo-rabies resulting from fright after a bite or scratch. These cases did not terminate in death, though he was not prepared to say that death from fright was impossible. The nervous shock received might set up a series of changes, such as motor paresis, œdema of the brain, and coma, resulting in death. He did not believe that we are yet able to refer the phenomena of true rabies to one variety of germ. The effects might be due to the presence of distinct varieties.

DR. H. P. LOOMIS said that he had considered the subject from a pathological standpoint only. His findings tallied very closely with those described by Dr. Ernst. Sections of the lower portion of the medulla showed congestion of the capillary vessels and giant-cell infiltration of the adventitia, but no capillary hæmorrhages or thrombi.

DR. BYRON, who has made extensive experiments both at the Carnegie and the Loomis laboratories, said that he had reached the conclusions that (1) inoculations of the specific virus of rabies under the skin are useless as a means of prevention, (2) that the results desired can never be produced by any process except subdural inoculation, and (3) that even then the effect is not inevitable. The question is a serious one and requires further research before any definite scientific conclusions can be formulated.

DR. E. C. SPITZKA said that he had made no experiments on rabbits, as intimated by Dr. Ernst, who had evidently not followed the points of the speaker's work. In the experiments made by himself on dogs by the introduction of various irritating substances into the brain, he had produced a bogus hydrophobia, but had never claimed that these were cases of true hydrophobia. He is now assisting in a series of elaborate experiments on rabies, the results of which cannot as yet be determined.

DR. L. C. GRAY, in closing, thought the discussion had proved (1) that there is among the lower animals a disease known as rabies, possibly constituting several diseases and due to different microörganisms; (2) that this disease is more frequent in the lower animals than is the similar disease in man known as hydrophobia; (3) that while this so-called rabies in animals occurs very often in this country, it occurs less frequently in the human being; (4) that very few medical men have seen cases of genuine hydrophobia; (5) that cases of pseudo-hydrophobia are by no means uncommon, and that death can result from the condition; and (6) that there is still considerable diversity of opinion as to the value of Pasteur's method, which should furnish material for discussion and incite to further experiment.

CORRESPONDENCE.

THE NERVE-SUPPLY OF THE SENSE OF TASTE.

To the Editor of THE MEDICAL NEWS,

SIR: I have read Dr. John Ferguson's extremely interesting article in your issue of October 18th, and think that the author is to be congratulated upon having been able to observe so demonstrative a case.

But while this case seems to prove very definitely that the loss of taste in this instance was due to disease of the Vidian nerve, the evidence that the glosso-pharyngeal nerve is not concerned in supplying the sense of taste is very much weaker. In an article by myself on "Paralysis of the Trigeminus and Its Relations to the Sense of Taste (*Journal of Nervous and Mental Diseases*, February, 1886), I summed up the facts in support of the gustatory functions of the glosso-pharyngeal as follows:

"1. By anatomical dissections the fibres of this nerve have been traced directly to the taste organs (Vintschgau).

"2. By the Wallerian and atrophy methods, Vintschgau and Honigschmied have found that after resecting the glosso-pharyngeal nerves in young rabbits the peripheral portions and the taste-buds atrophy and disappear (Hermann's *Handb. der Phys.*).

"3. The physiological experiments of Magendie, Panizza, J. Reid, Broughton, Valentin, Wagner, Stannius, Lussana, and others, show that after resecting the glosso-pharyngeals the sense of taste is partly or wholly destroyed.

"4. The clinical evidence that the glosso-pharyngeal has something to do with the function of taste is almost unanimous. In all cases of trigeminal paralysis reported, so far as I can find, there is either no loss of taste or loss of taste only on the anterior two-thirds of the tongue, Gowers's cases being the only exceptions to this rule."

Dr. Ferguson's statement that paralysis of the trigeminus always causes complete hemiageusia is, I think, decidedly contradicted by facts. My own case (*loc. cit.*) may be cited as an instance.

In *Brain*, January, 1886, Dr. Thomas Harris reports a case in which a tumor involved the right side of the pons, entirely destroying the fifth nerve and Gasserian ganglion on that side, and causing total hemianæsthesia of the face and tongue, without loss of taste.

On the other hand, I have collected (*loc. cit.*) several cases of paralysis of the glosso-pharyngeal with loss of taste resulting.

I might add that Dr. Ferguson's report is incomplete in this, that he did not trace the degeneration of the Vidian back to Meckel's ganglion and the second branch of the trigeminus.

This does not, however, seriously affect the very convincing evidence, so far as it goes, which his case furnishes. But there have been other cases which almost entirely contradict this one, and which especially invalidate the theory that the glosso-pharyngeal has no gustatory function.

Very respectfully,

CHARLES L. DANA, M.D.

50 W. FORTY-SIXTH ST., NEW YORK, October 22, 1890.

NEWS ITEMS.

Dr. Bartholow's Chair Vacated.—At a meeting of the Board of Trustees of the Jefferson Medical College held on Monday, October 27th, the Chair of Therapeutics and Materia Medica was declared vacant on the ground that Dr. Bartholow was mentally disqualified to hold the position. The most prominent candidates for the professorship are said to be Dr. S. O. L. Potter, of San Francisco, Dr. James C. Wilson, Dr. S. Solis-Cohen, Dr. Henry Morris, and Dr. T. J. Mays, of Philadelphia. The trustees adjourned after declaring the chair vacant, to meet on Monday, November 3d, to take further action.

Tri-State Medical Association.—The meeting of the Tri-State Medical Association of Mississippi, Arkansas, and Tennessee, has been postponed until November 19th and 20th.

The Saranac Lake Sanitarium for Consumptives.—Dr. J. Solis-Cohen informs us that he has received a letter from one of his patients in Dr. Trudeau's Sanitarium at Saranac Lake, reporting marked improvement in her own condition and in that of many other inmates. This patient was far from being a promising case, and the result speaks well for the system adopted by Dr. Trudeau. To quote from this letter: "So far, I have seen no place equal to the Sanitarium—not even the fine hotels. It should have been called 'Paradise for Consumptives.'"

A Caisson-disease Hospital.—The *British Medical Journal* quotes from an engineering periodical a description of a compressed-air chamber, or cylinder, for the reception of workers in tunnels and others who suffer from caisson-disease. Mr. Moir, the engineer in charge of the Hudson River tunnel work, has devised for his men, several of whom have been severely affected, a "hospital" for caisson-cases. This so-called hospital is a steel-plate cylinder, eighteen feet long by six feet in diameter, and is divided into two compartments, one of which is an air-lock. Both chambers have been fitted up with beds and everything necessary for the comfort of the patients. The air-pressure is maintained by a pump, so arranged that it will furnish a constant supply of fresh air. The degree of pressure is not kept very high, seldom, if ever, exceeding thirty pounds to the square inch. This degree of compression promptly retards the progress of the trouble, if the early symptoms receive attention.

Obituary.—DR. COSMO BRAILLY, formerly of New York City, died at Hazlett, N. J., on the 5th inst., aged seventy-six years. He was a native of France and a graduate of the University of Paris, but he had spent nearly fifty years of his professional life in New York.

Corrigendum.

CHLOROFORM AND THE HYDERABAD COMMISSION.

In the address of Dr. J. C. Reeve (THE MEDICAL NEWS, October 18th) the third sentence should read: "The differences of opinion and practice which prevail as to the two great anæsthetics are far greater than ever prevail upon subjects fully and clearly understood."

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM OCTOBER 14 TO OCTOBER 27, 1890.

JARVIS, N. S., *Assistant Surgeon.*—Is granted leave of absence for one month, on surgeon's certificate of disability.—*S. O. 107, Department of Arizona.* October 14, 1890.

By direction of the Secretary of War, leave of absence for four months is granted JAMES E. PILCHER, *Captain and Assistant Surgeon.*—Par. 12, *S. O. 244, A. G. O.*, October 18, 1890.

By direction of the Acting Secretary of War, the retirement from active service, on October 12, 1890, by operation of law, of ANDREW V. CHERBONNIER, *Captain and Medical Storekeeper*, under the provisions of the Act of Congress approved June 30, 1882, is announced.—Par. 11, *S. O. 240, A. G. O., Washington, D. C.*, October 13, 1890.

GLENNAN, J. D., *First Lieutenant and Assistant Surgeon.*—Is granted leave of abence for one month, to take effect about the 31st instant.—Par. 1, *S. O. 146, Department of the Missouri*, October 23, 1890.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING OCTOBER 25, 1890.

CORDEIRO, F. J. B., *Passed Assistant Surgeon.*—Detached from the U. S. S. "Nipsic," and granted three months' leave of absence.

HEFFINGER, A. C., *Passed Assistant Surgeon.*—Placed on the Retired List October 20, 1890.